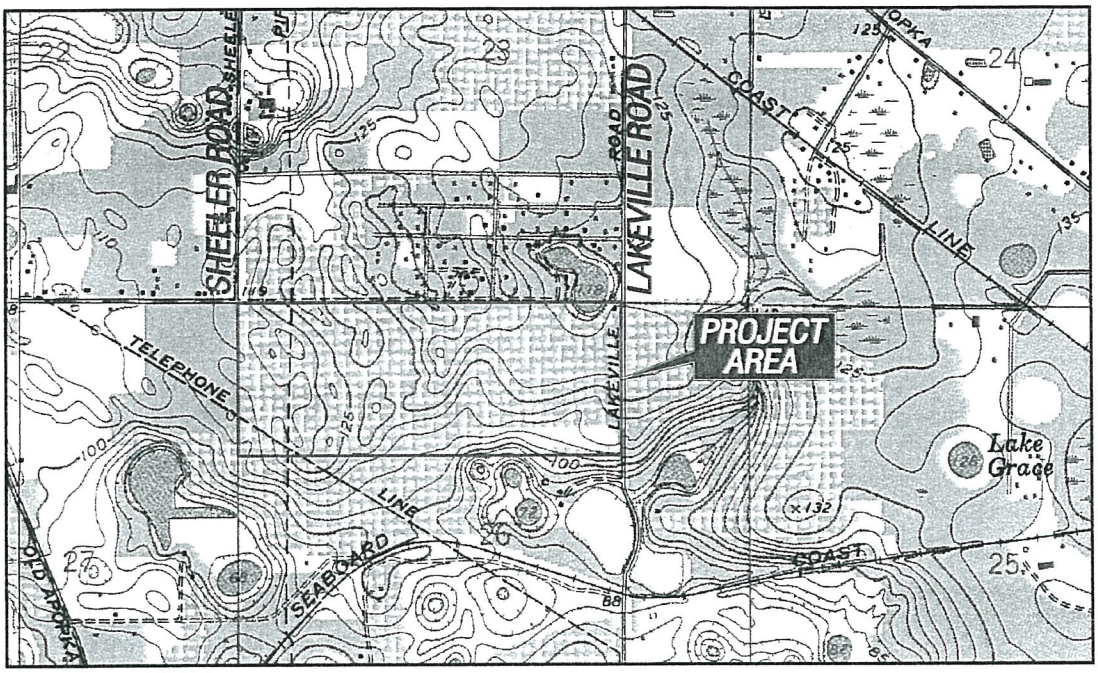


PREPARED FROM:

USGS FOREST CITY, FLA. QUADRANGLE MAP

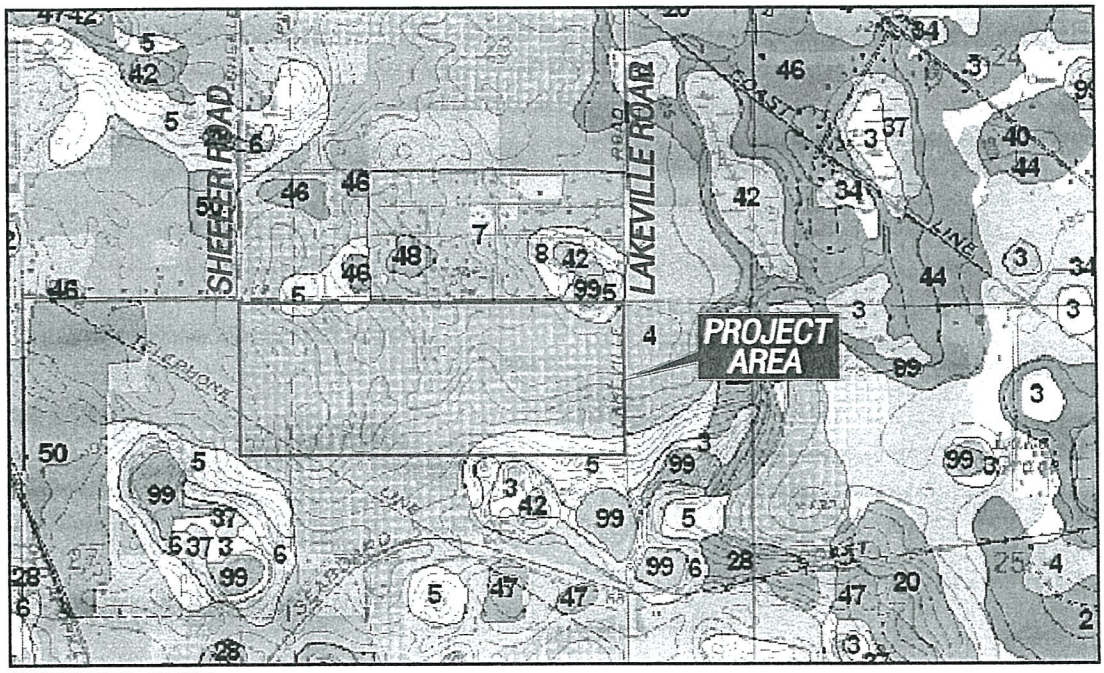
ISSUED

PHOTOREVISED 1980

SECTION: 26

TOWNSHIP: 21 SOUTH

RANGE: 28 EAST



PREPARED FROM:

NRCS SOIL SURVEY OF ORANGE CO., FLA.

AERIAL PHOTOBASE DATED

ORANGE COUNTY MAP UNIT LEGEND

4 — CANDLER FINE SAND, 0 TO 5 PERCENT SLOPES

5 — CANDLER FINE SAND, 5 TO 12 PERCENT SLOPES

Geotechnical and Environmental Consultants, Inc.
1230 E. HILLCREST ST.
ORLANDO, FLORIDA 32803
(407) 898-1818
FAX (407) 898-1897
COA NO. 00005882

WESTERN REGIONAL SERVICE AREA WATER TREATMENT PLANT

PROJECT NO.:	2607G3
DATE:	3-10-08
SENIOR PROFESSIONAL: P.E. NO.	MJP 24041
PROJECT PROFESSIONAL:	EWN
DRAWN BY:	TLM
REVISION:	

North

0 1000 2000

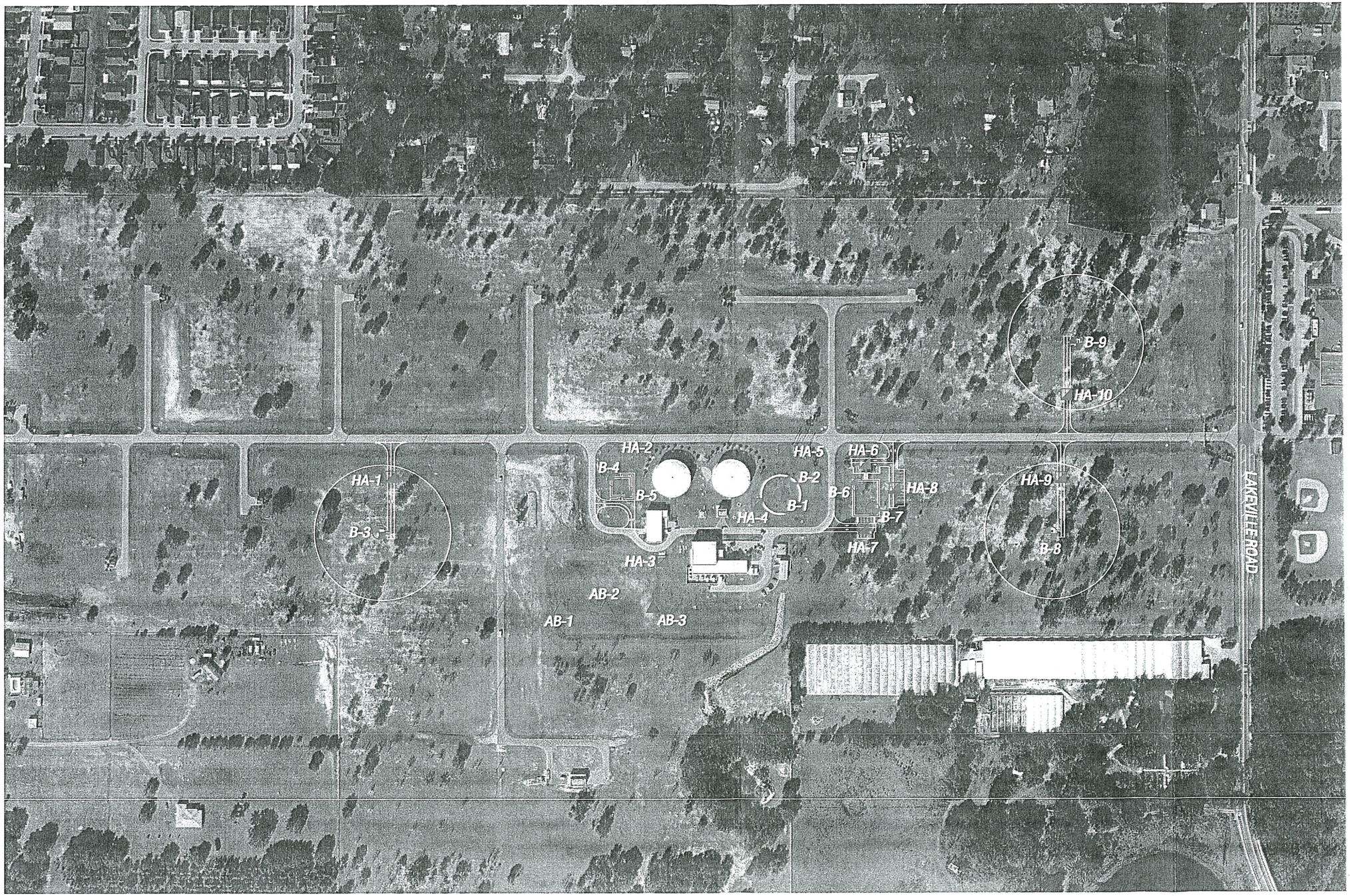
SCALE (FEET)

USGS QUADRANGLE AND NRCS SOIL SURVEY MAPS

FIGURE 1

J:\WATER\2607G3\2607G3quad.dwg, 3/12/2008 1:36:09 PM, 1:2000

BORING LOCATION PLAN



Geotechnical and Environmental Consultants, inc.
1230 E. HILLCREST ST.
ORLANDO, FLORIDA 32803
(407) 898-1818
FAX (407) 898-1897
COA NO. 00005882

WESTERN REGIONAL SERVICE AREA WATER TREATMENT PLANT

PROJECT NO.:	2607G3
DATE:	3-27-08
SENIOR PROFESSIONAL: MJP P.E. NO.	24041
PROJECT PROFESSIONAL:	EWN
DRAWN BY:	SKR
REVISION:	

LEGEND

- APPROXIMATE SPT BORING LOCATION
- APPROXIMATE MACHINE AUGER BORING LOCATION
- APPROXIMATE HAND AUGER BORING LOCATION

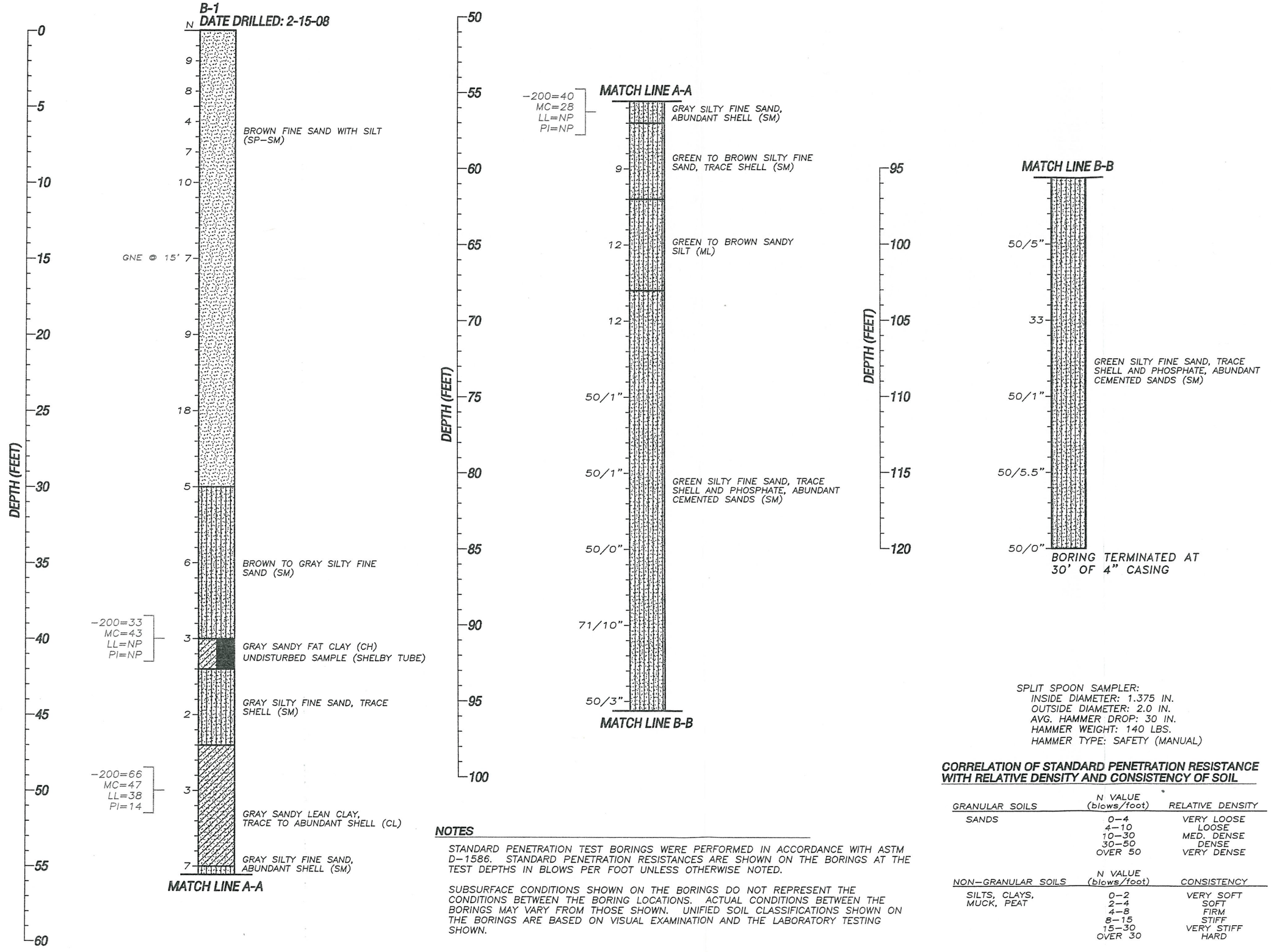
North

0 150 300
SCALE (FEET)

SITE PLAN WITH BORING LOCATIONS

FIGURE 2

BORING RESULTS



SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30 IN.
HAMMER WEIGHT: 140 LBS.
HAMMER TYPE: SAFETY (MANUAL)

NOTES

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE NOTED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS DO NOT REPRESENT THE CONDITIONS BETWEEN THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN THE BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND THE LABORATORY TESTING SHOWN.

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL

GRANULAR SOILS	N VALUE (blows/foot)	RELATIVE DENSITY
SANDS	0-4	VERY LOOSE
	4-10	LOOSE
	10-30	MED. DENSE
	30-50	DENSE
	OVER 50	VERY DENSE

NON-GRANULAR SOILS	N VALUE (blows/foot)	CONSISTENCY
SILTS, CLAYS, MUCK, PEAT	0-2	VERY SOFT
	2-4	SOFT
	4-8	FIRM
	8-15	STIFF
	15-30	VERY STIFF
	OVER 30	HARD

Geotechnical and Environmental Consultants, Inc.
1230 E. HILLCREST ST.
ORLANDO, FLORIDA 32803
(407) 898-1818
FAX (407) 898-1897
COA NO. 00005882

WESTERN REGIONAL SERVICE AREA WATER TREATMENT PLANT

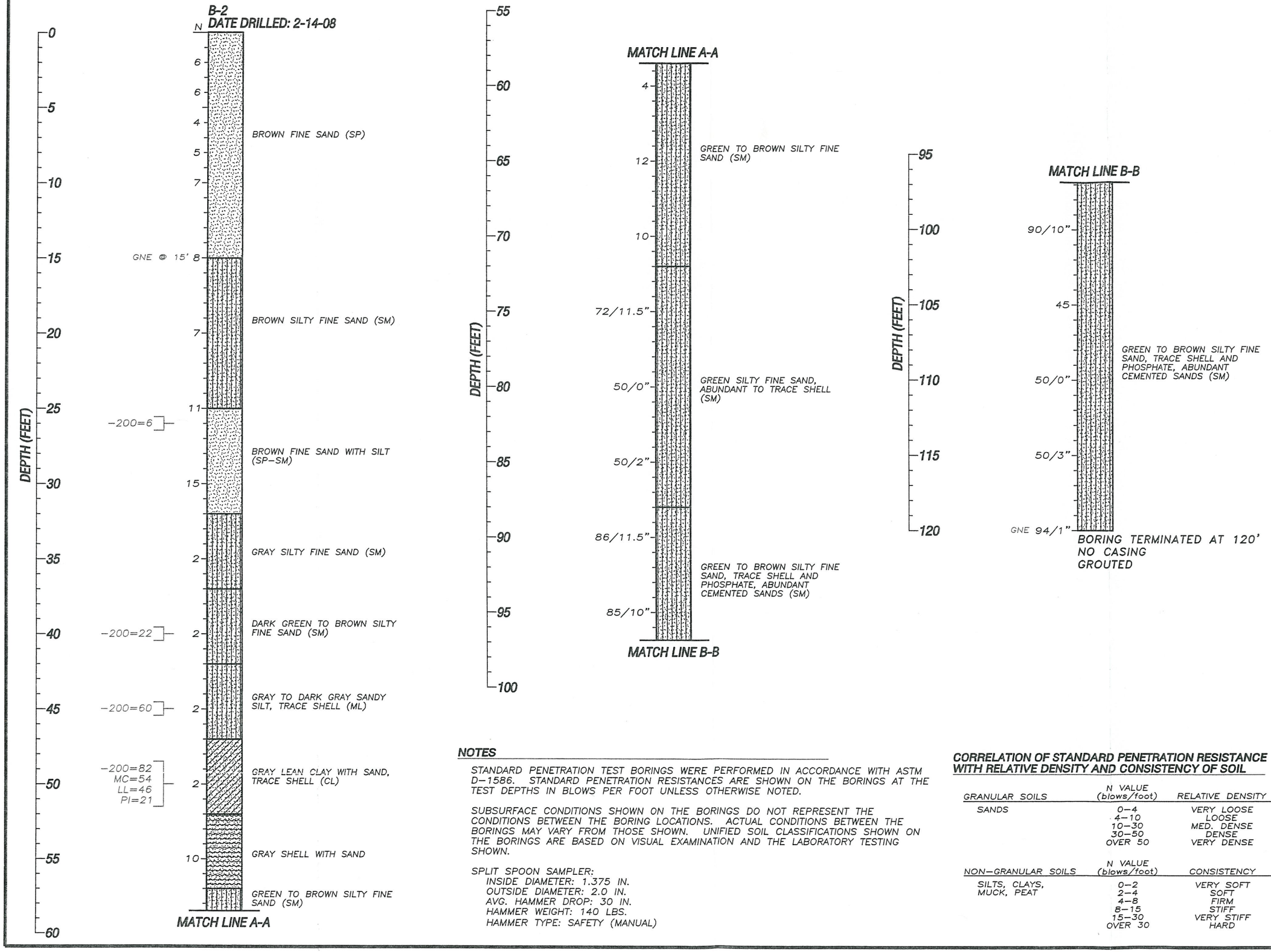
PROJECT NO.: 2607G3
DATE: 3-10-08
SENIOR PROFESSIONAL: MJP
P.E. NO. 24041
PROJECT PROFESSIONAL: EWN
DRAWN BY: TLM
REVISION:

LEGEND

- N — STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GNE — GROUNDWATER NOT ENCOUNTERED DURING DRILLING OF BORING
- 50/5" — NUMBER OF BLOWS FOR 5 INCHES OF PENETRATION
- -200= — PERCENT PASSING NO. 200 U.S. STANDARD SIEVE
- MC= — PERCENT NATURAL MOISTURE CONTENT
- LL= — LIQUID LIMIT
- PI= — PLASTICITY INDEX
- NP= — NON-PLASTIC
- SAND
- SAND AND SILT
- SAND AND CLAY

BORING RESULTS

FIGURE 3



NOTES

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE NOTED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS DO NOT REPRESENT THE CONDITIONS BETWEEN THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN THE BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND THE LABORATORY TESTING SHOWN.

SPLIT SPOON SAMPLER:
INSIDE DIAMETER: 1.375 IN.
OUTSIDE DIAMETER: 2.0 IN.
AVG. HAMMER DROP: 30 IN.
HAMMER WEIGHT: 140 LBS.
HAMMER TYPE: SAFETY (MANUAL)

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL

GRANULAR SOILS	N VALUE (blows/foot)	RELATIVE DENSITY
SANDS	0-4	VERY LOOSE
	4-10	LOOSE
	10-30	MED. DENSE
	30-50	DENSE
	OVER 50	VERY DENSE

NON-GRANULAR SOILS	N VALUE (blows/foot)	CONSISTENCY
SILTS, CLAYS, MUCK, PEAT	0-2	VERY SOFT
	2-4	SOFT
	4-8	FIRM
	8-15	STIFF
	15-30	VERY STIFF
	OVER 30	HARD

Geotechnical and Environmental Consultants, Inc.
1230 E. HILLCREST ST.
ORLANDO, FLORIDA 32803
(407) 898-1818
FAX (407) 898-1897
COA NO. 00005882

WESTERN REGIONAL SERVICE AREA WATER TREATMENT PLANT

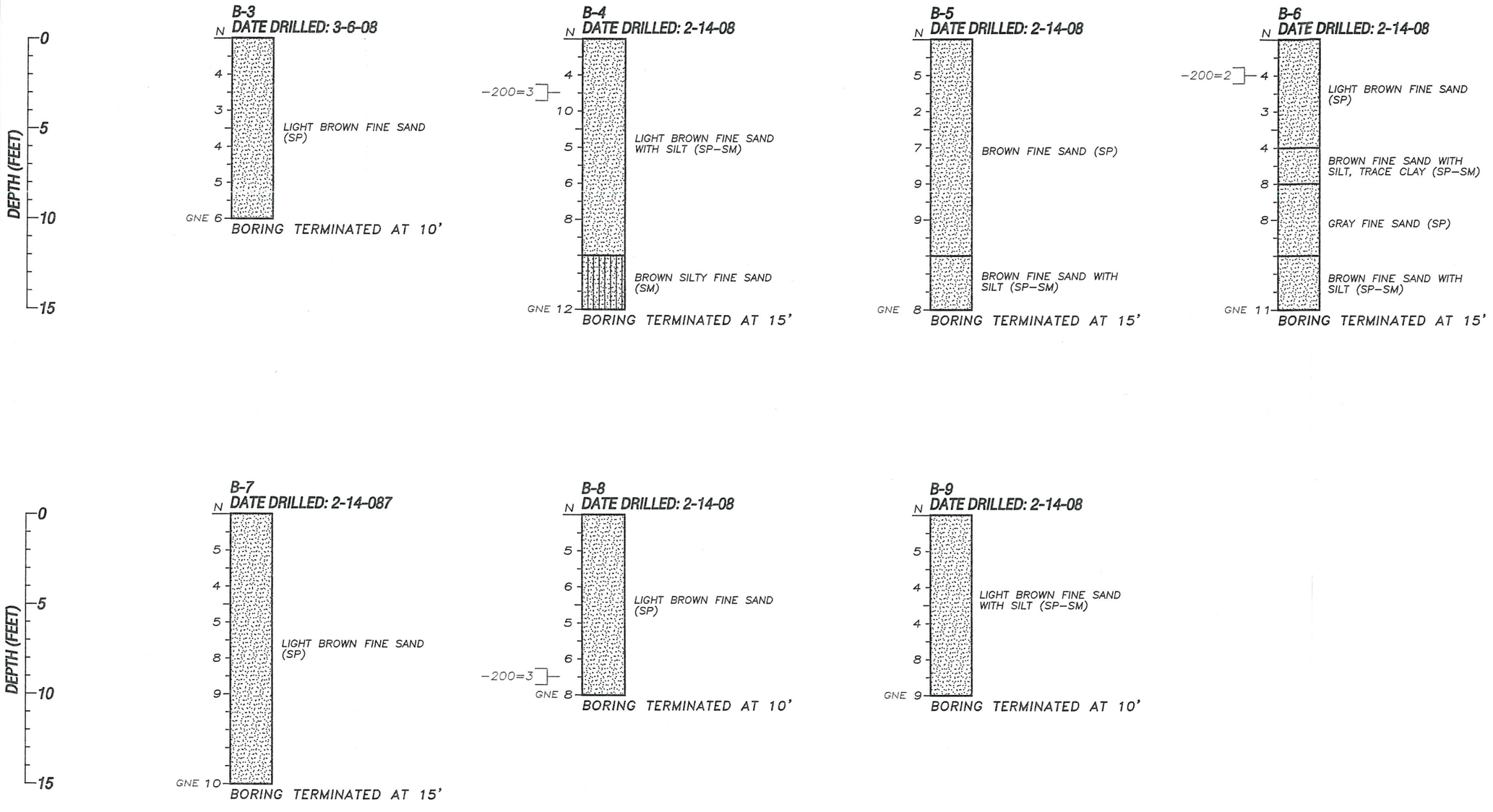
PROJECT NO.: 2607G3
DATE: 3-10-08
SENIOR PROFESSIONAL: MJP
P.E. NO. 24041
PROJECT PROFESSIONAL: EWN
DRAWN BY: TLM
REVISION:

LEGEND

- N — STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GNE — GROUNDWATER NOT ENCOUNTERED DURING DRILLING OF BORING
- 50/5" — NUMBER OF BLOWS FOR 5 INCHES OF PENETRATION
- -200= — PERCENT PASSING NO. 200 U.S. STANDARD SIEVE
- MC= — PERCENT NATURAL MOISTURE CONTENT
- LL= — LIQUID LIMIT
- PI= — PLASTICITY INDEX
- SAND
- SAND AND SILT
- SAND AND CLAY
- SHELL, SILT AND SAND

BORING RESULTS

FIGURE 4



NOTES

STANDARD PENETRATION TEST BORINGS WERE PERFORMED IN ACCORDANCE WITH ASTM D-1586. STANDARD PENETRATION RESISTANCES ARE SHOWN ON THE BORINGS AT THE TEST DEPTHS IN BLOWS PER FOOT UNLESS OTHERWISE NOTED.

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS DO NOT REPRESENT THE CONDITIONS BETWEEN THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN THE BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND THE LABORATORY TESTING SHOWN.

SPLIT SPOON SAMPLER:
- INSIDE DIAMETER: 1.375 IN.
- OUTSIDE DIAMETER: 2.0 IN.
- AVG. HAMMER DROP: 30 IN.
- HAMMER WEIGHT: 140 LBS.
- HAMMER TYPE: SAFETY (MANUAL)

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL

GRANULAR SOILS	N VALUE (blows/foot)	RELATIVE DENSITY
SANDS	0-4	VERY LOOSE
	4-10	LOOSE
	10-30	MED. DENSE
	30-50	DENSE
	OVER 50	VERY DENSE

NON-GRANULAR SOILS	N VALUE (blows/foot)	CONSISTENCY
SILTS, CLAYS, MUCK, PEAT	0-2	VERY SOFT
	2-4	SOFT
	4-8	FIRM
	8-15	STIFF
	15-30	VERY STIFF
	OVER 30	HARD

Geotechnical and Environmental Consultants, Inc.
1230 E. HILLCREST ST.
ORLANDO, FLORIDA 32803
(407) 898-1818
FAX (407) 898-1897
COA NO. 00005882

WESTERN REGIONAL SERVICE AREA WATER TREATMENT PLANT

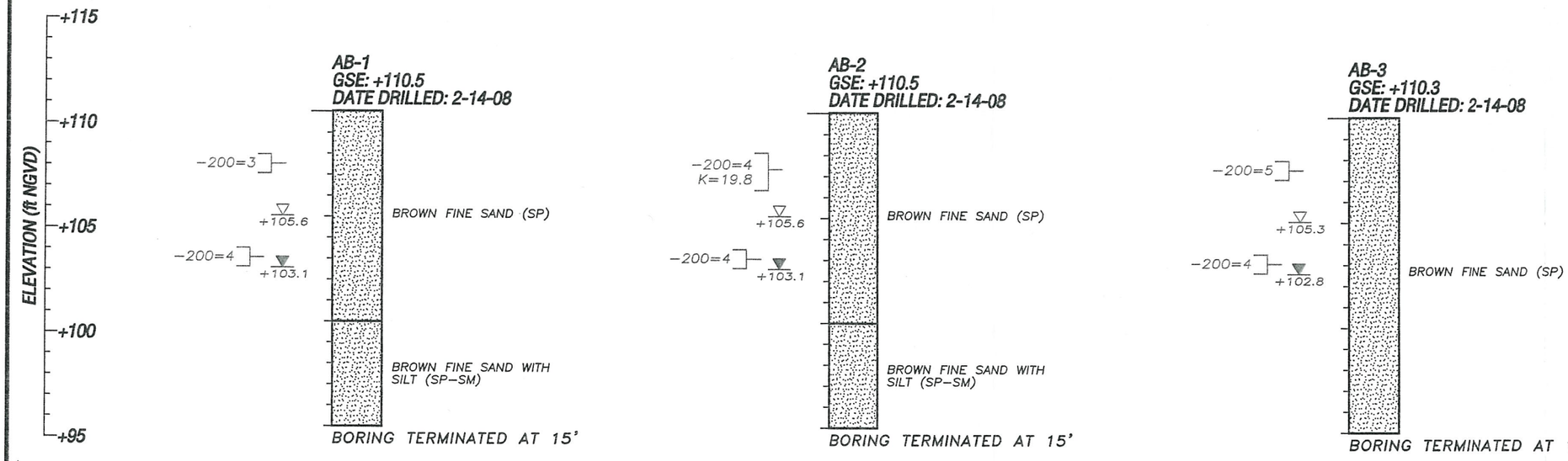
PROJECT NO.: 2607G3
DATE: 3-10-08
SENIOR PROFESSIONAL: MJP
P.E. NO. 24041
PROJECT PROFESSIONAL: EWN
DRAWN BY: TLM
REVISION:

LEGEND

- N — STANDARD PENETRATION RESISTANCE, BLOWS PER FOOT
- GNE — GROUNDWATER NOT ENCOUNTERED DURING DRILLING OF BORING
- -200= — PERCENT PASSING NO. 200 U.S. STANDARD SIEVE
- SAND
- SAND AND SILT

BORING RESULTS

FIGURE 5



NOTES

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS DO NOT REPRESENT THE CONDITIONS BETWEEN THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN THE BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND THE LABORATORY TESTING SHOWN.

Geotechnical and Environmental Consultants, Inc.
1230 E. HILLCREST ST.
ORLANDO, FLORIDA 32803
(407) 898-1818
FAX (407) 898-1897
COA NO. 00005882

WESTERN REGIONAL SERVICE AREA WATER TREATMENT PLANT

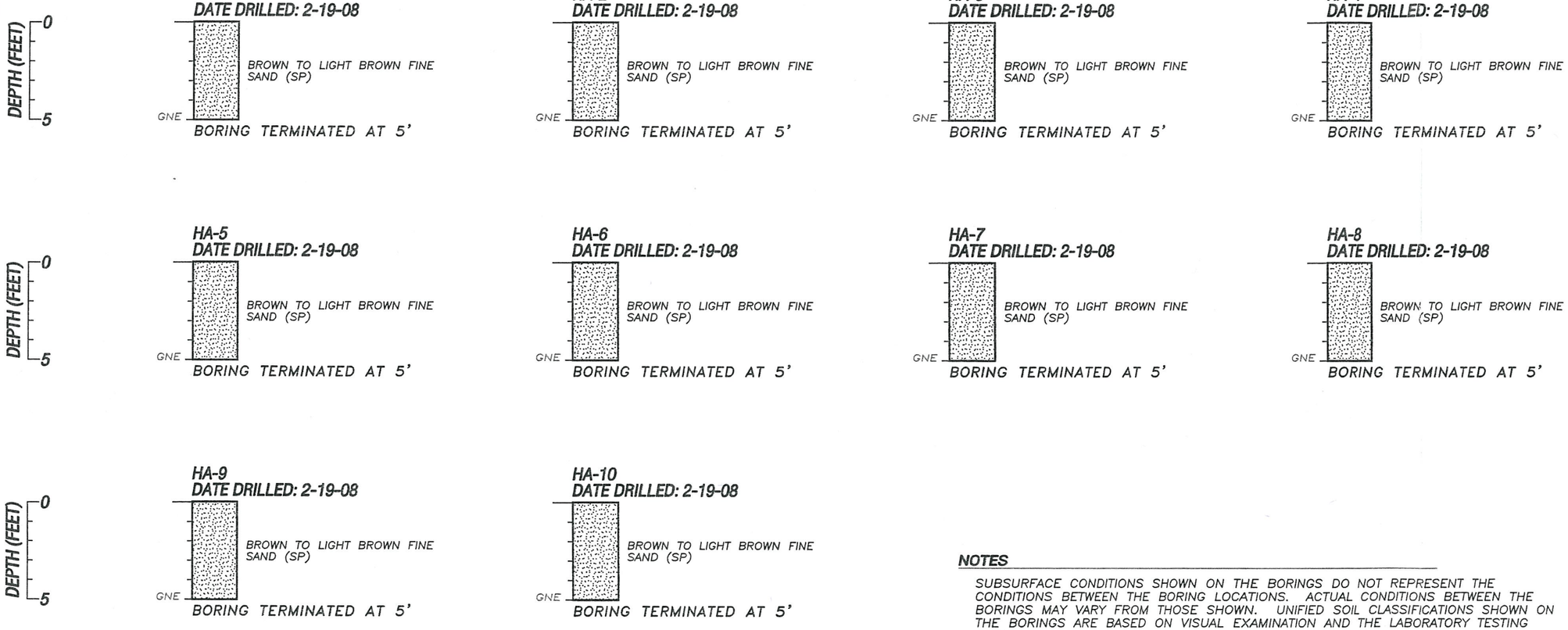
PROJECT NO.: 2607G3
DATE: 3-10-08
SENIOR PROFESSIONAL: MJP
P.E. NO. 24041
PROJECT PROFESSIONAL: EWN
DRAWN BY: TLM
REVISION:

LEGEND

- +105.6 — ESTIMATED SEASONAL HIGH GROUNDWATER ELEVATION (FT. NGVD)
- +103.1 — ENCOUNTERED GROUNDWATER ELEVATION (FT. NGVD)
- GSE — GROUND SURFACE ELEVATION (FT. NGVD)
- GNE — GROUNDWATER NOT ENCOUNTERED DURING DRILLING OF BORING
- K= — PERMEABILITY RATE (ft./day)
- -200= — PERCENT PASSING NO. 200 U.S. STANDARD SIEVE
- SAND

BORING RESULTS

FIGURE 6



NOTES

SUBSURFACE CONDITIONS SHOWN ON THE BORINGS DO NOT REPRESENT THE CONDITIONS BETWEEN THE BORING LOCATIONS. ACTUAL CONDITIONS BETWEEN THE BORINGS MAY VARY FROM THOSE SHOWN. UNIFIED SOIL CLASSIFICATIONS SHOWN ON THE BORINGS ARE BASED ON VISUAL EXAMINATION AND THE LABORATORY TESTING SHOWN.

Geotechnical and Environmental Consultants, Inc.
1230 E. HILLCREST ST.
ORLANDO, FLORIDA 32803
(407) 898-1818
FAX (407) 898-1897
COA NO. 00005882

WESTERN REGIONAL SERVICE AREA WATER TREATMENT PLANT

PROJECT NO.: 2607G3
DATE: 3-10-08
SENIOR PROFESSIONAL: MJP
P.E. NO. 24041
PROJECT PROFESSIONAL: EWN
DRAWN BY: TLM
REVISION:

LEGEND

GNE — GROUNDWATER NOT ENCOUNTERED DURING DRILLING OF BORING

-200= PERCENT PASSING NO. 200 U.S. STANDARD SIEVE

SAND

BORING RESULTS

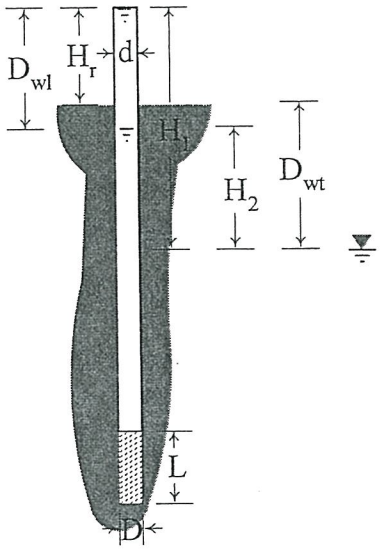
FIGURE 7

APPENDIX

FIELD PERMEABILITY RESULTS

FIELD PERMEABILITY TEST
CALCULATION
Western Service Area
Phase III WTP
GEC PROJECT
NO. 2607G3
TEST LOCATION: AB-2
SOIL TYPE: SP
TEST DEPTH: 2'-4'

FALLING HEAD PERMEABILITY TEST



$d := 3 \cdot in$ CASING DIAMETER

$H_r := 3 \cdot ft$ RISER HEIGHT

$D_{wt} := 7 \cdot ft$ DEPTH TO GROUNDWATER

$L := 2 \cdot ft$ LENGTH OF GRAVEL PACK

$D_{wl} := 0.9 \cdot ft$ WATER LEVEL DROP (DRAWDOWN)

$\Delta t := 0min + 5sec$ TIME FOR WATER LEVEL TO DROP

$D := d$ DIAMETER OF GRAVEL PACK

$H_1 := H_r + D_{wt}$ INITIAL PIEZOMETRIC HEAD (ASSUMES STARTING WATER LEVEL AT THE TOP OF THE CASING)

$H_2 := H_1 - D_{wl}$ FINAL PIEZOMETRIC HEAD

$m = \sqrt{\frac{kh}{kv}}$ TRANSFORMATION RATIO $m := \sqrt{2}$ ASSUMING kv = 0.5kh

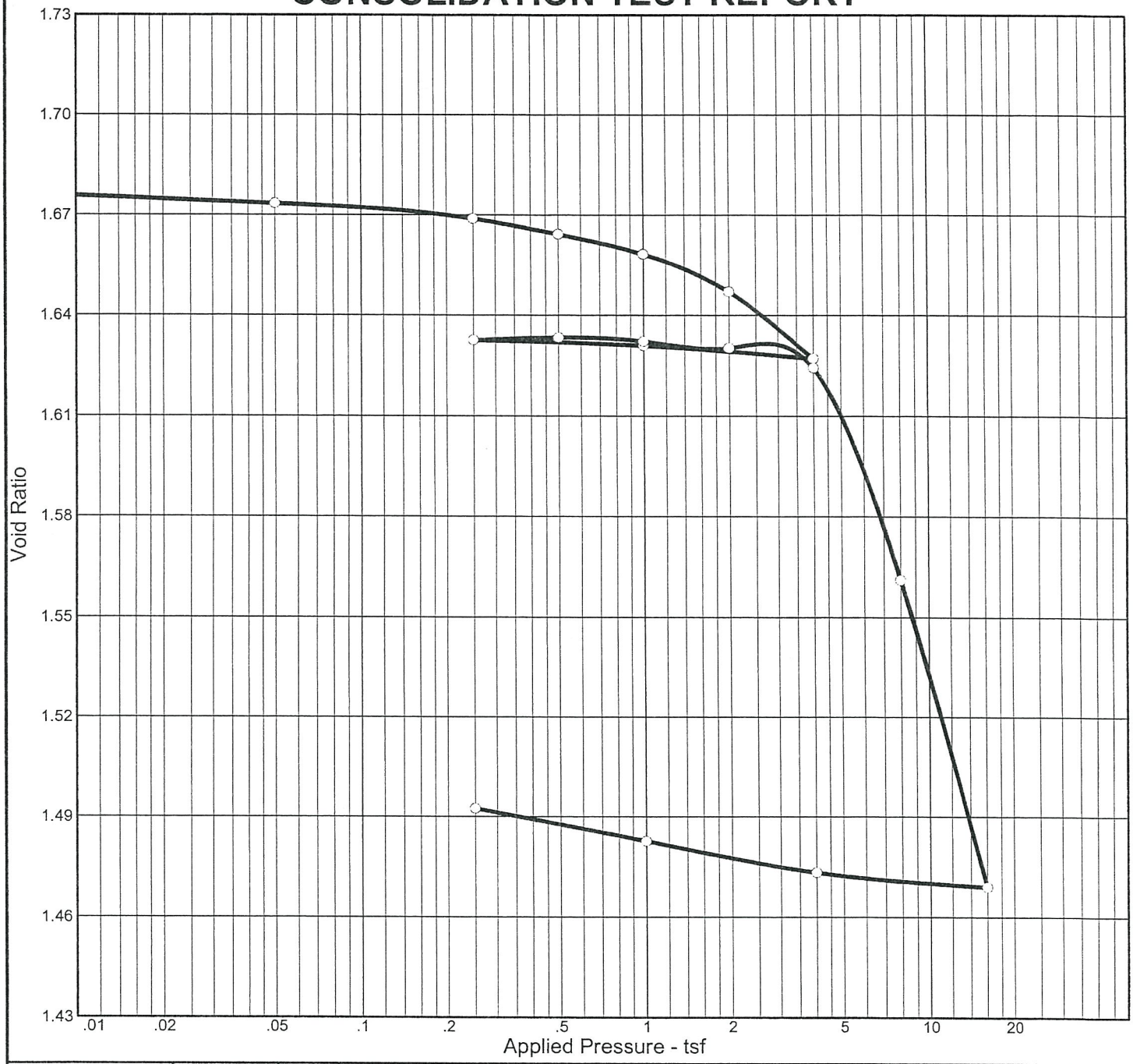
$m \cdot \frac{L}{D} = 11.314$

$k_h := \frac{d^2 \cdot \ln\left(\frac{2 \cdot m \cdot L}{D}\right)}{8 \cdot L \cdot (\Delta t)} \cdot \ln\left(\frac{H_1}{H_2}\right)$ FROM NAVFAC TM 5-818-5 PG. 35
(FORMULA APPLICABLE WHEN mL/D > 4)

$k_h = 19.856 \frac{ft}{day}$

CONSOLIDATION TEST REPORT

CONSOLIDATION TEST REPORT



Natural		Dry Dens.	LL	PI	Sp.	Overburden	P_c	C_c	C_r	Swell Press.	Heave	e_o
Sat.	Moist.	(pcf)			Gr.	(tsf)	(tsf)			(tsf)	%	
85.6 %	52.7 %	65.7	46	21	2.72		4.55	0.28	0.01			1.676

MATERIAL DESCRIPTION	USCS	AASHTO
GREY CLAYEY FINE SAND	(SC)	

Project No. 2607G3 **Client:** TETRA

Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")

Remarks:
-200= 40%

CONSOLIDATION TEST REPORT

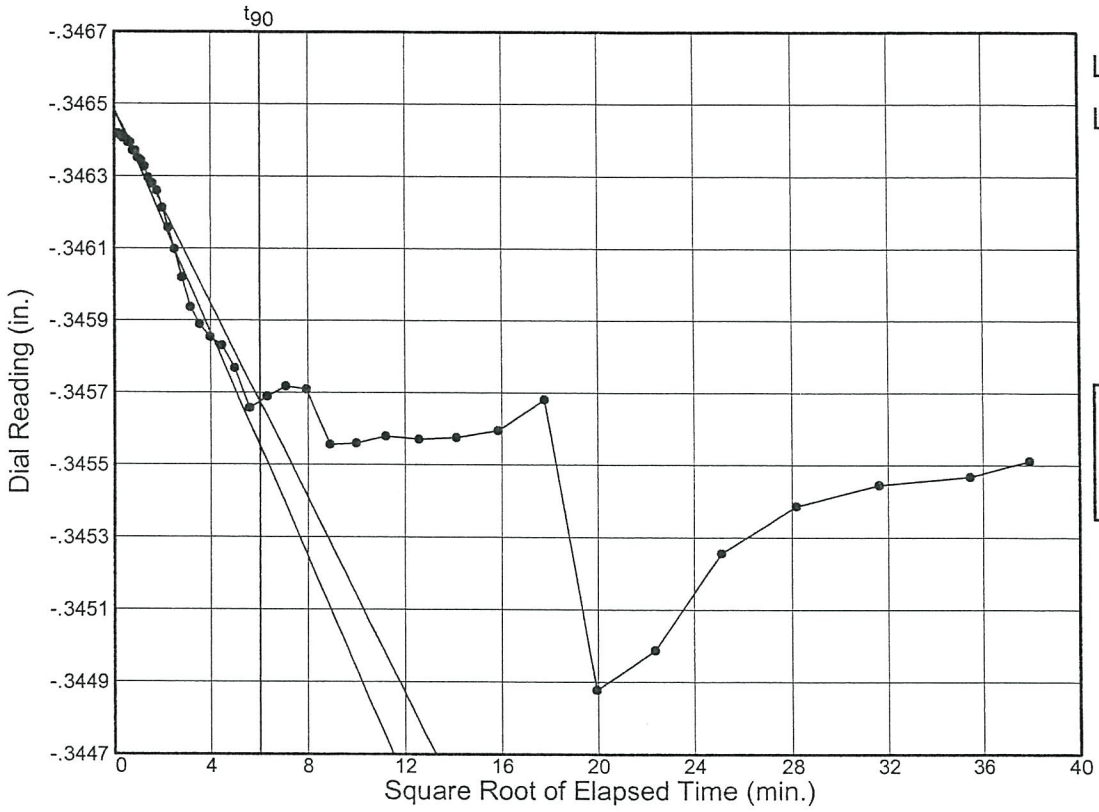
Geotechnical and Environmental Consultants, Inc.

Plate

Dial Reading vs. Time

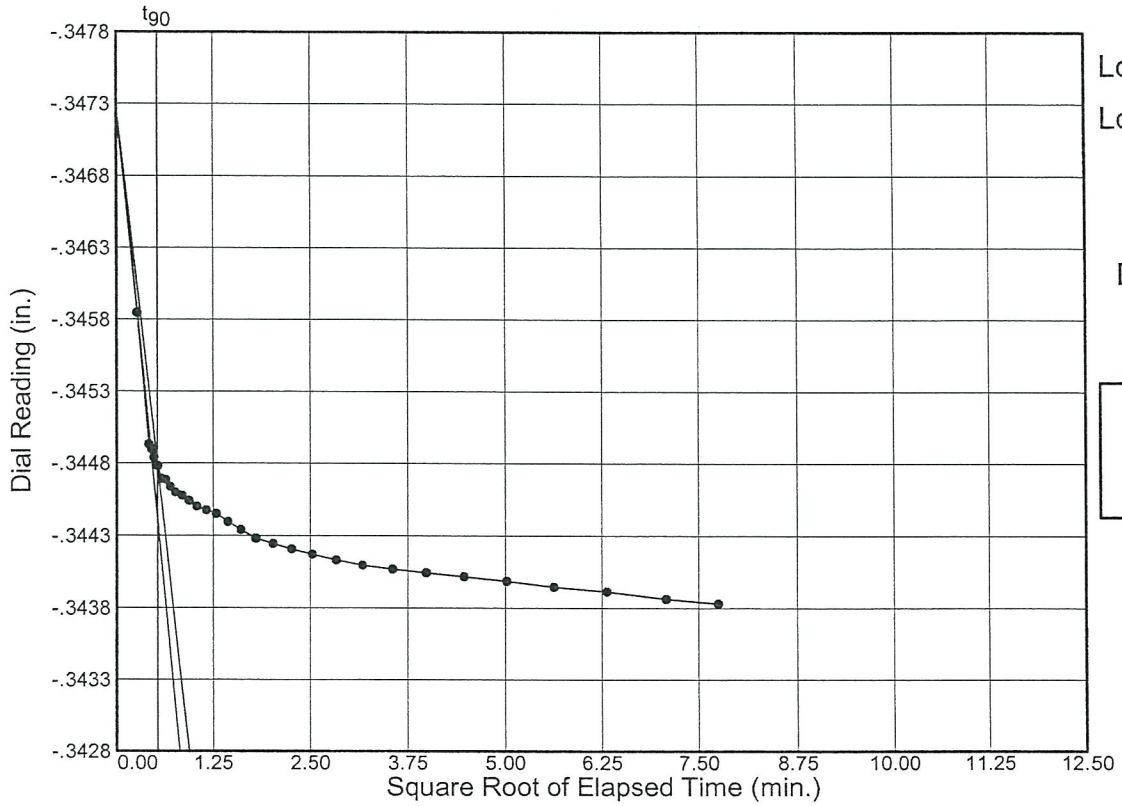
Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 1
Load= 0.05 tsf
D_0 = -0.34649
D_{90} = -0.34568
D_{100} = -0.34559
T_{90} = 36.17 min.

C_v @ T_{90}
0.04 ft.^{2}/day



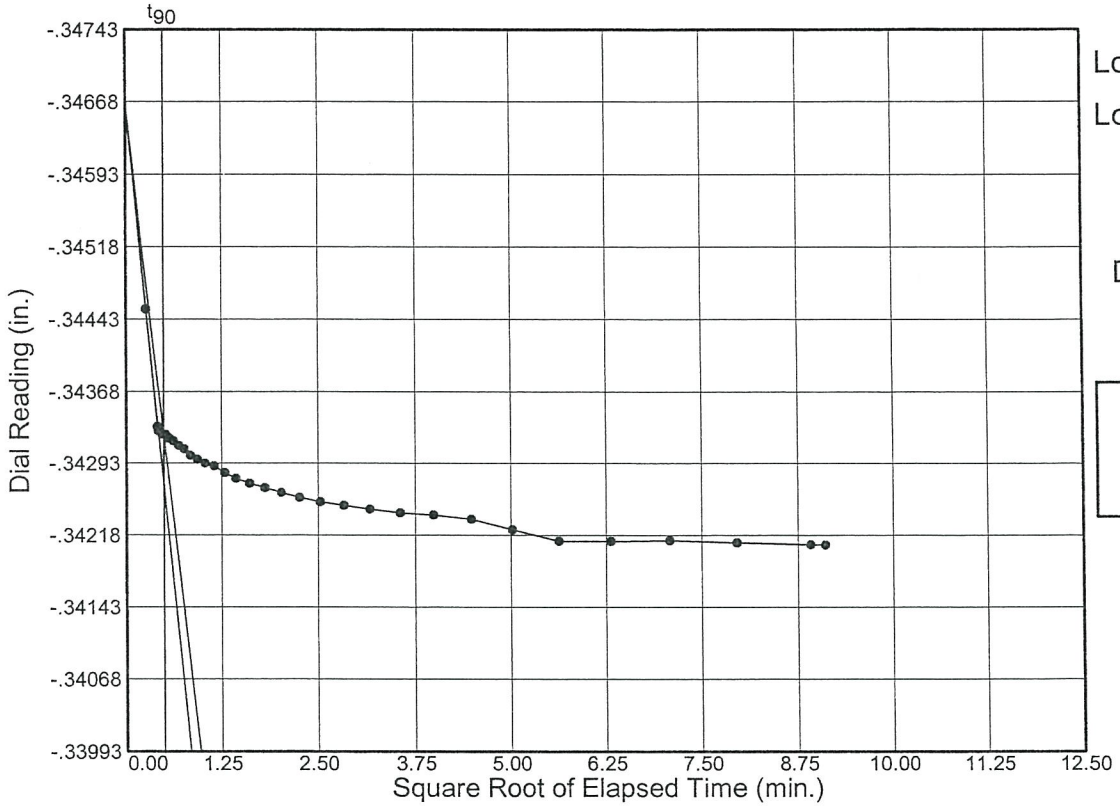
Load No.= 2
Load= 0.25 tsf
D_0 = -0.34729
D_{90} = -0.34479
D_{100} = -0.34451
T_{90} = 0.27 min.

C_v @ T_{90}
5.31 ft.^{2}/day

Dial Reading vs. Time

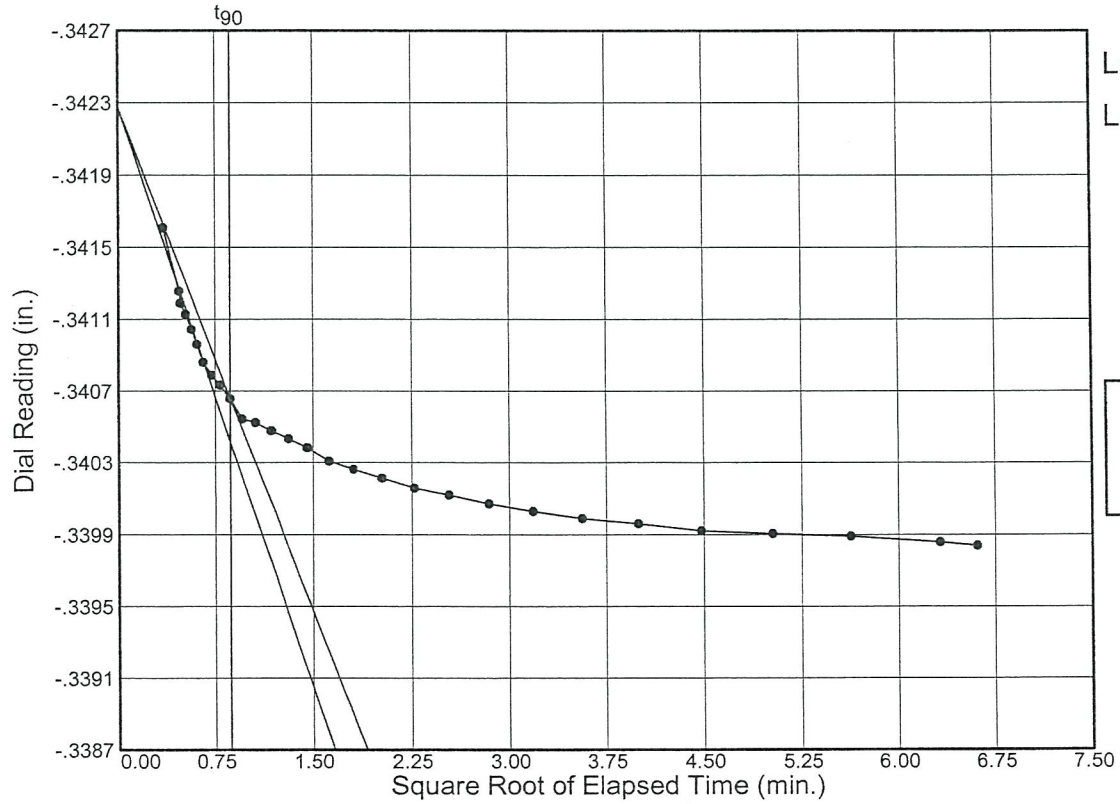
Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 3
Load= 0.50 tsf
D_0 = -0.34667
D_{90} = -0.34323
D_{100} = -0.34285
T_{90} = 0.24 min.

C_v @ T_{90}
6.02 ft.^{2}/day



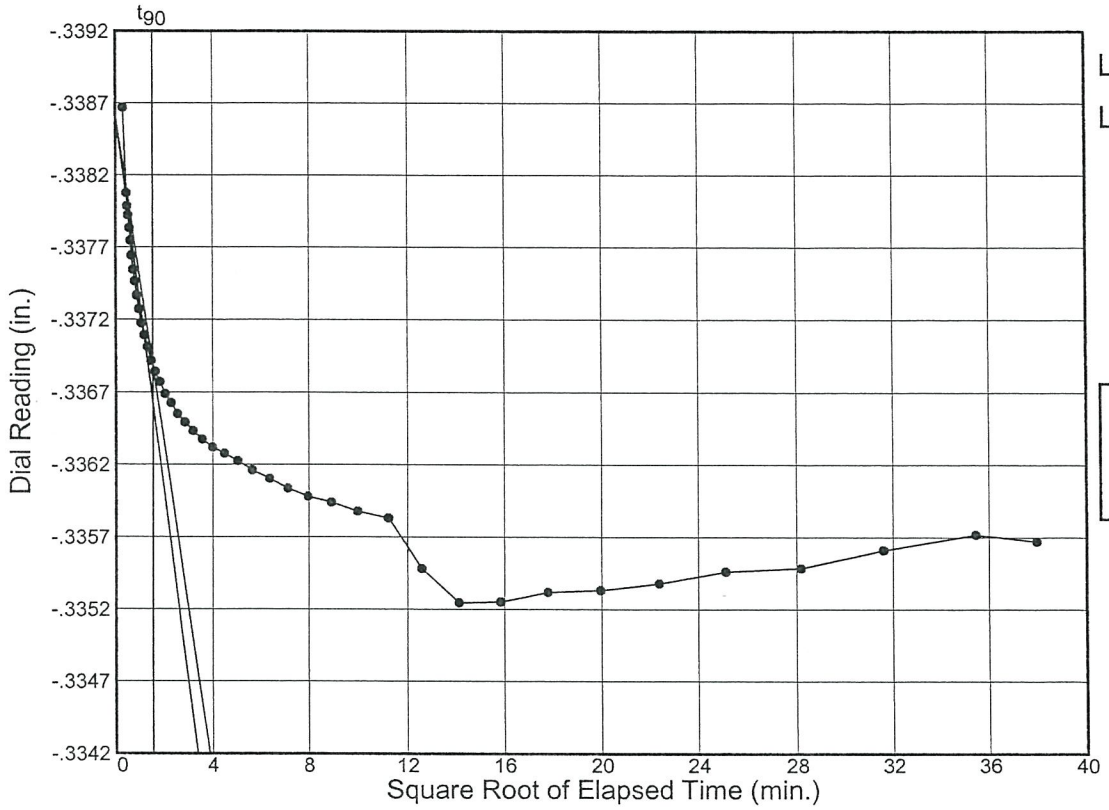
Load No.= 4
Load= 1.00 tsf
D_0 = -0.34228
D_{90} = -0.34066
D_{100} = -0.34048
T_{90} = 0.75 min.

C_v @ T_{90}
1.92 ft.^{2}/day

Dial Reading vs. Time

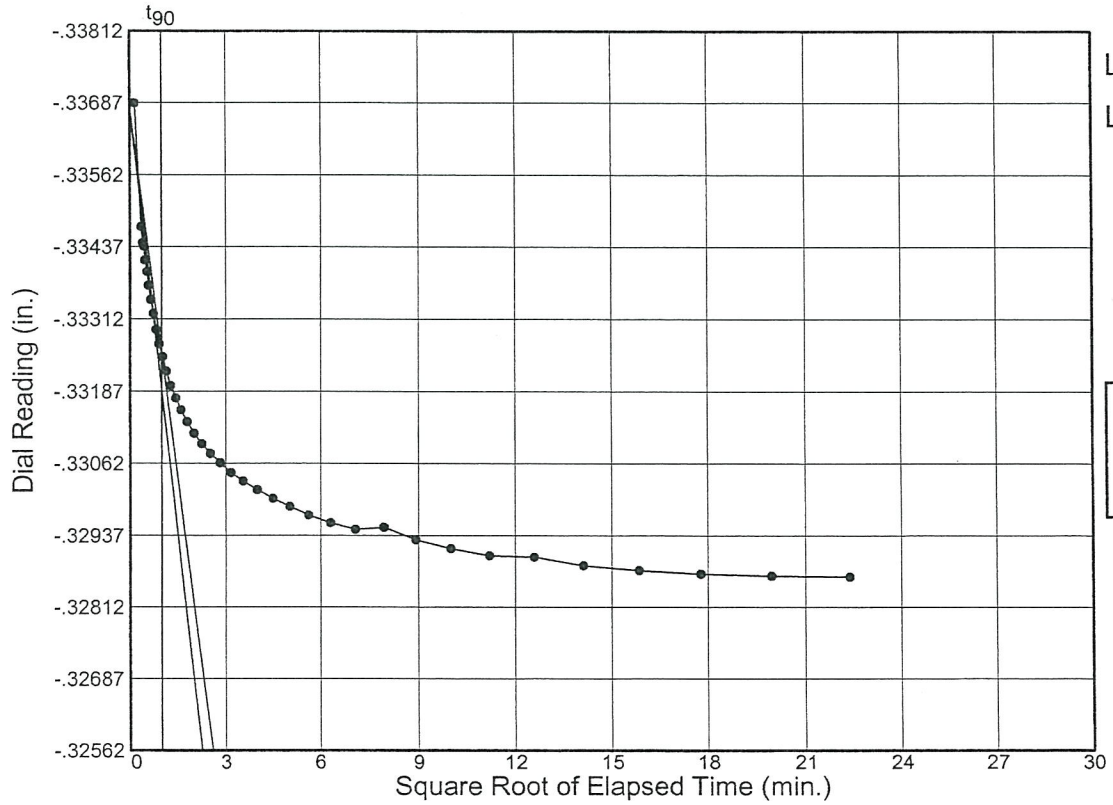
Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 5
Load= 2.00 tsf
D_0 = -0.33863
D_{90} = -0.33689
D_{100} = -0.33670
T_{90} = 2.30 min.

C_v @ T_{90}
0.62 ft.^{2}/day



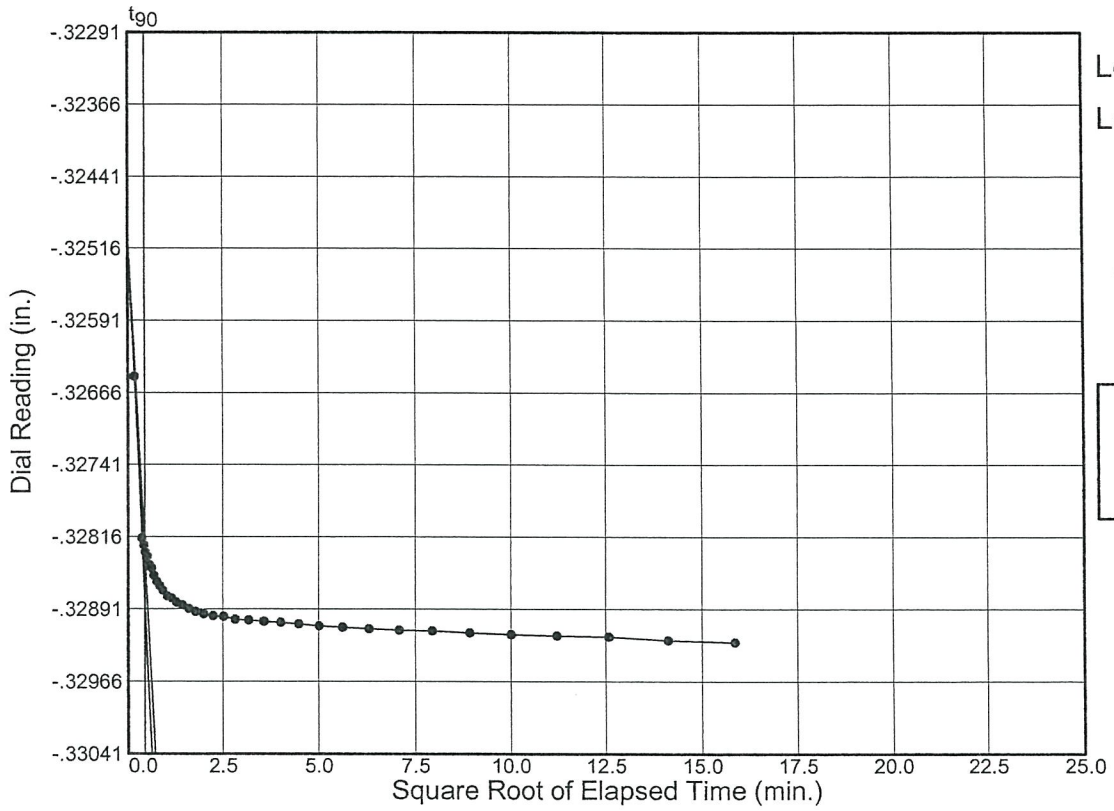
Load No.= 6
Load= 4.00 tsf
D_0 = -0.33681
D_{90} = -0.33253
D_{100} = -0.33206
T_{90} = 0.98 min.

C_v @ T_{90}
1.44 ft.^{2}/day

Dial Reading vs. Time

Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 7

Load= 1.00 tsf

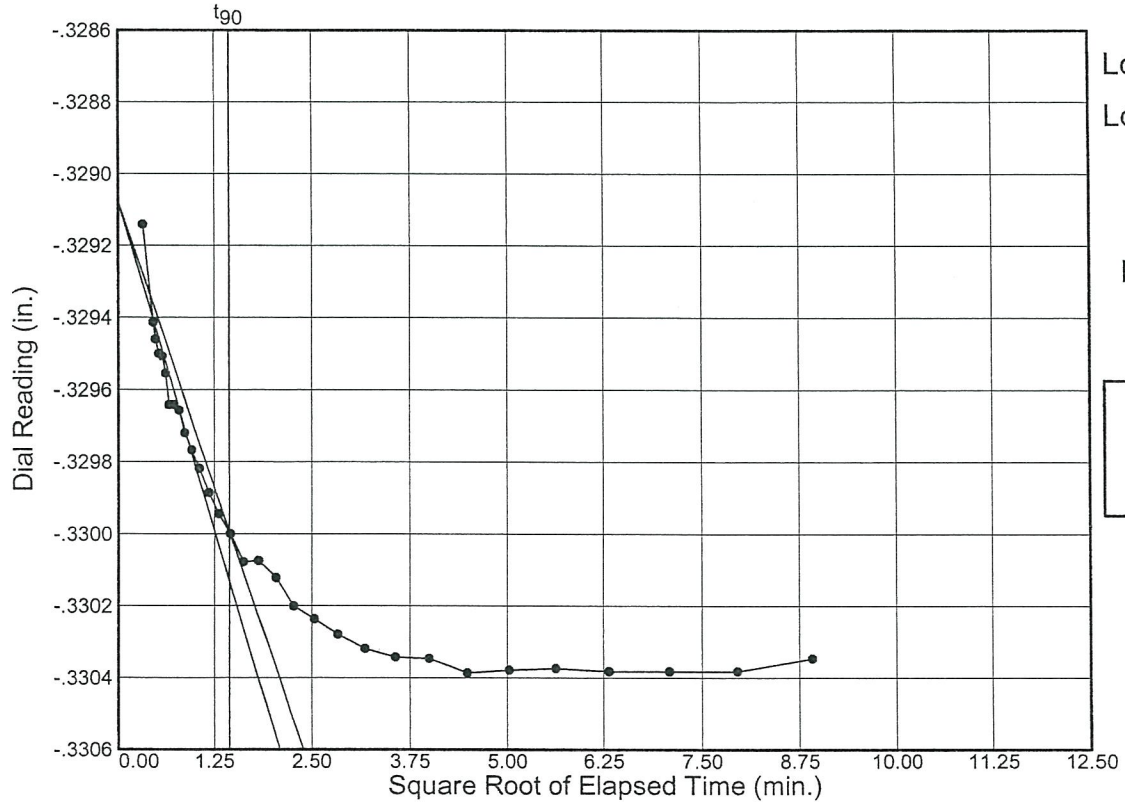
D_0 = -0.32493

D_{90} = -0.32828

D_{100} = -0.32865

T_{90} = 0.18 min.

C_v @ T_{90}
7.75 ft.^{2}/day



Load No.= 8

Load= 0.25 tsf

D_0 = -0.32908

D_{90} = -0.32999

D_{100} = -0.33009

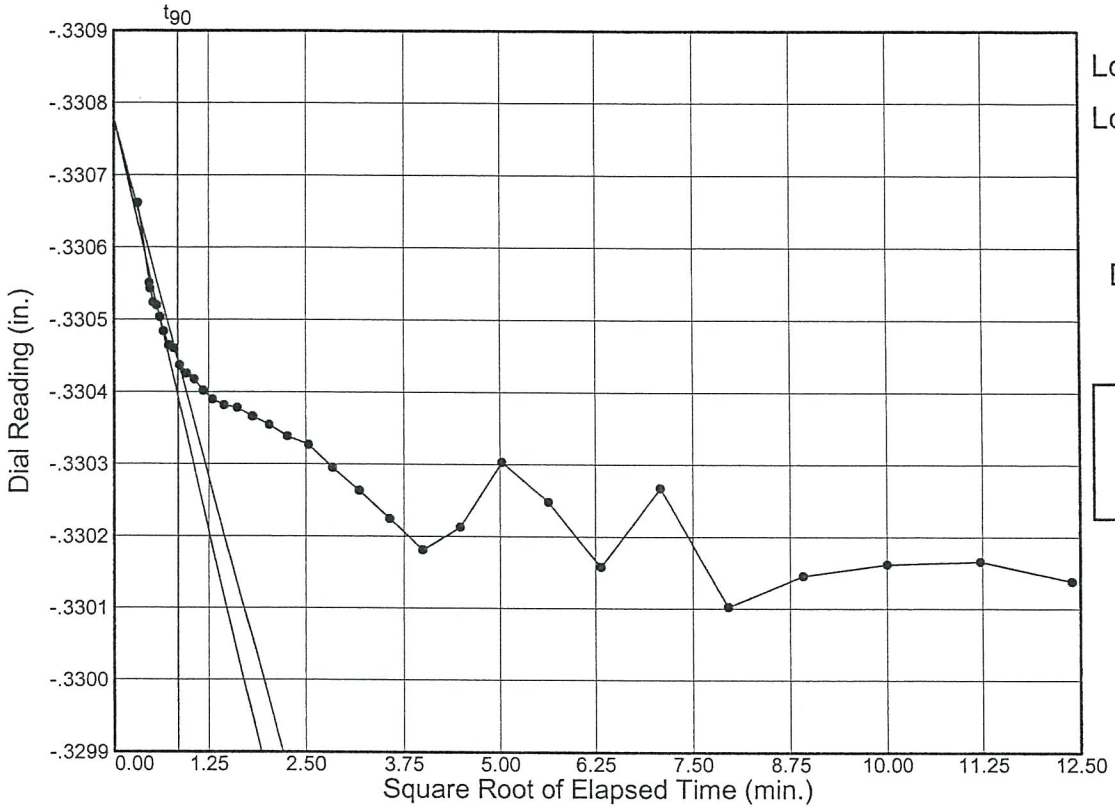
T_{90} = 2.06 min.

C_v @ T_{90}
0.69 ft.^{2}/day

Dial Reading vs. Time

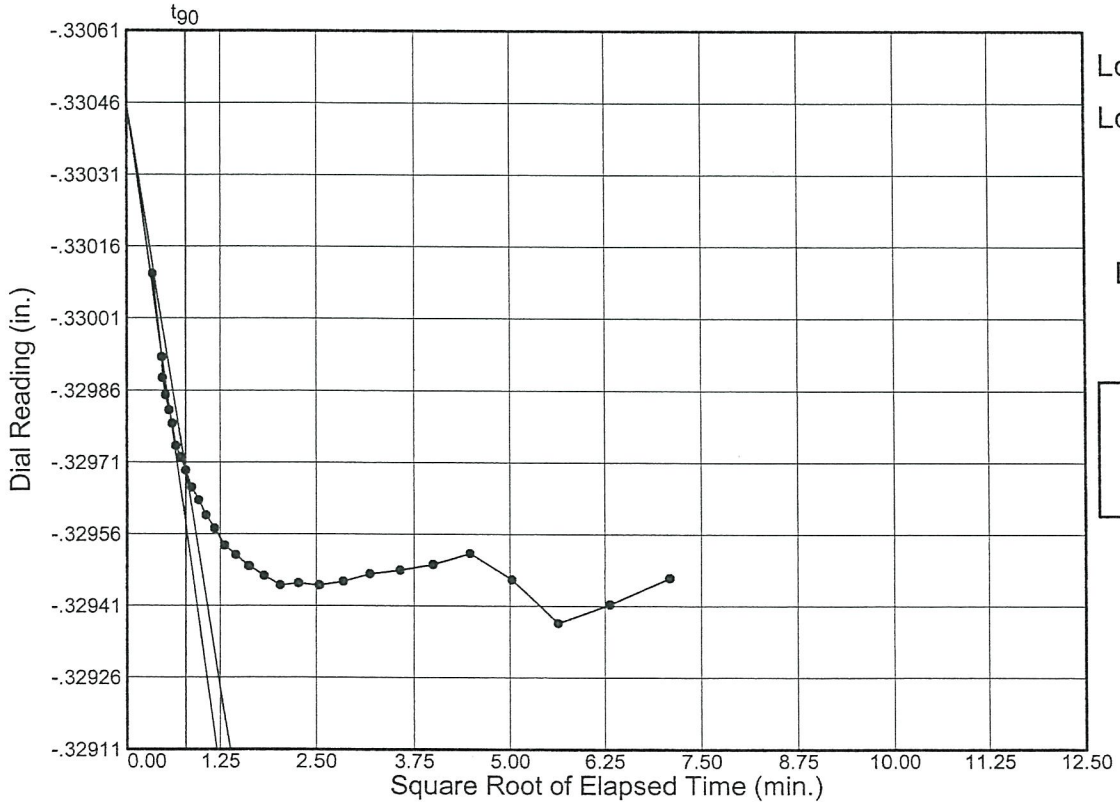
Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 10
Load= 1.00 tsf
D_0 = -0.33078
D_{90} = -0.33044
D_{100} = -0.33041
T_{90} = 0.71 min.

C_v @ T_{90}
2.01 ft.^{2}/day



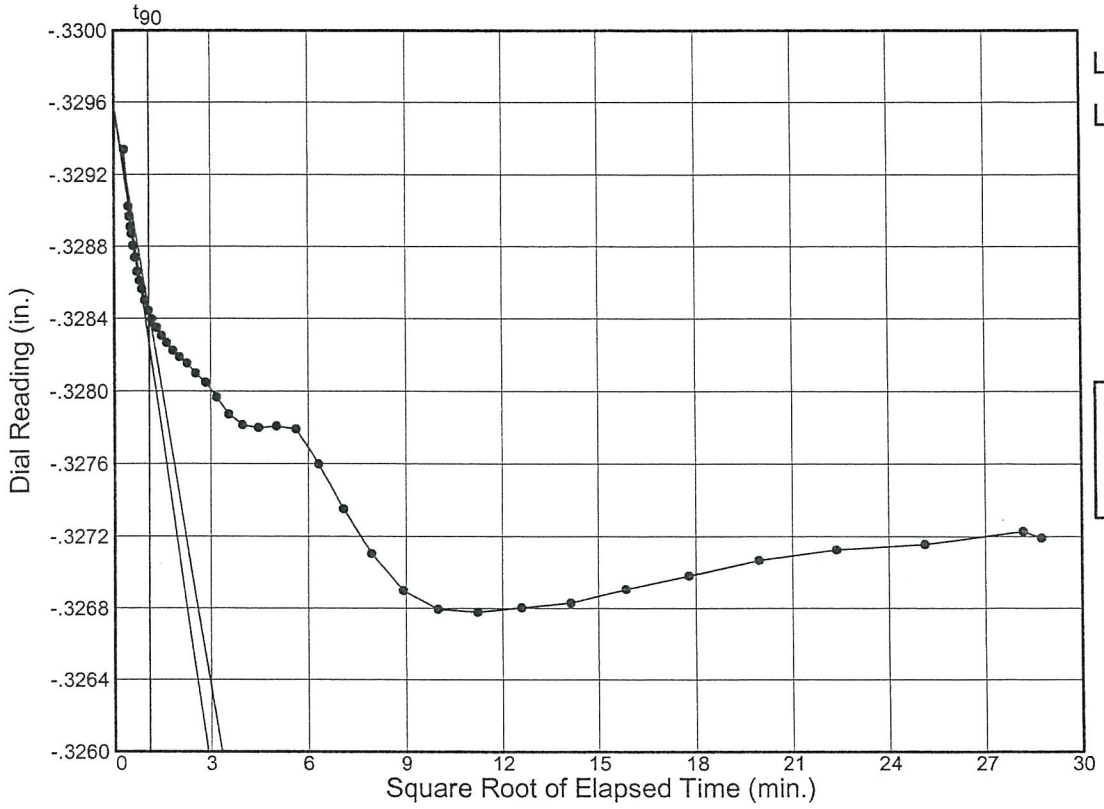
Load No.= 11
Load= 2.00 tsf
D_0 = -0.33046
D_{90} = -0.32969
D_{100} = -0.32961
T_{90} = 0.61 min.

C_v @ T_{90}
2.32 ft.^{2}/day

Dial Reading vs. Time

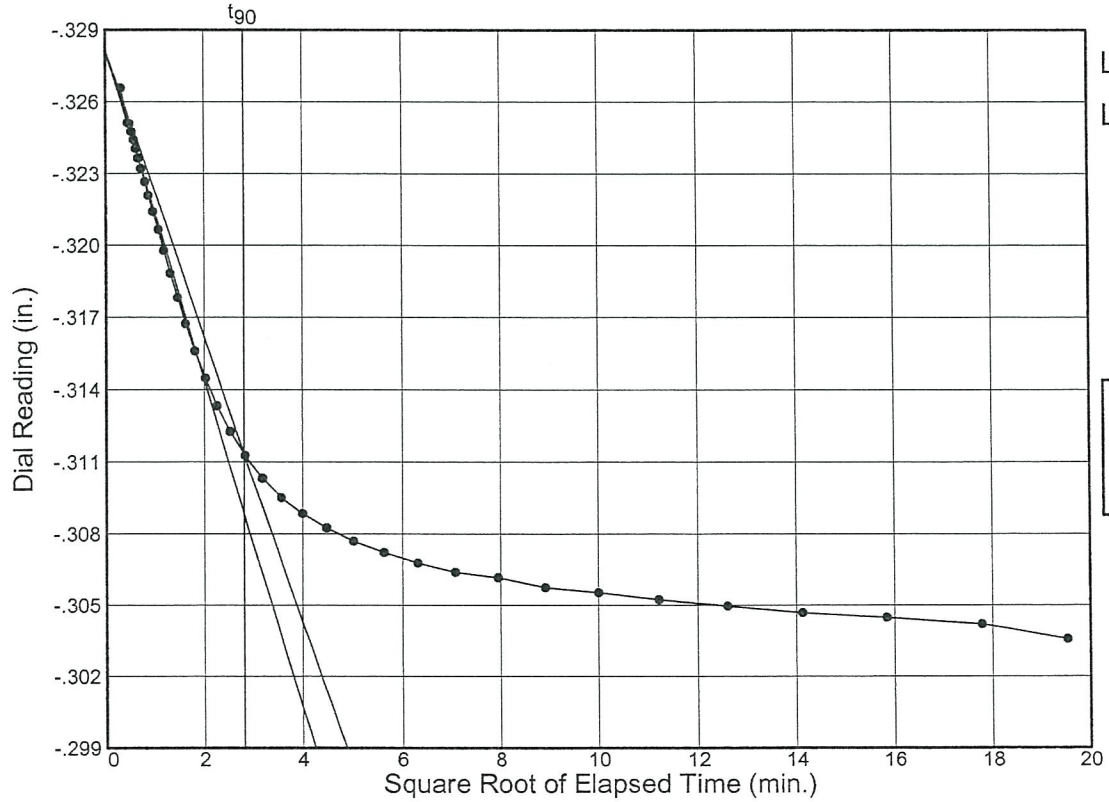
Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 12
Load= 4.00 tsf
D_0 = -0.32959
D_{90} = -0.32844
D_{100} = -0.32832
T_{90} = 1.13 min.

C_v @ T_{90}
1.25 ft.^{2}/day



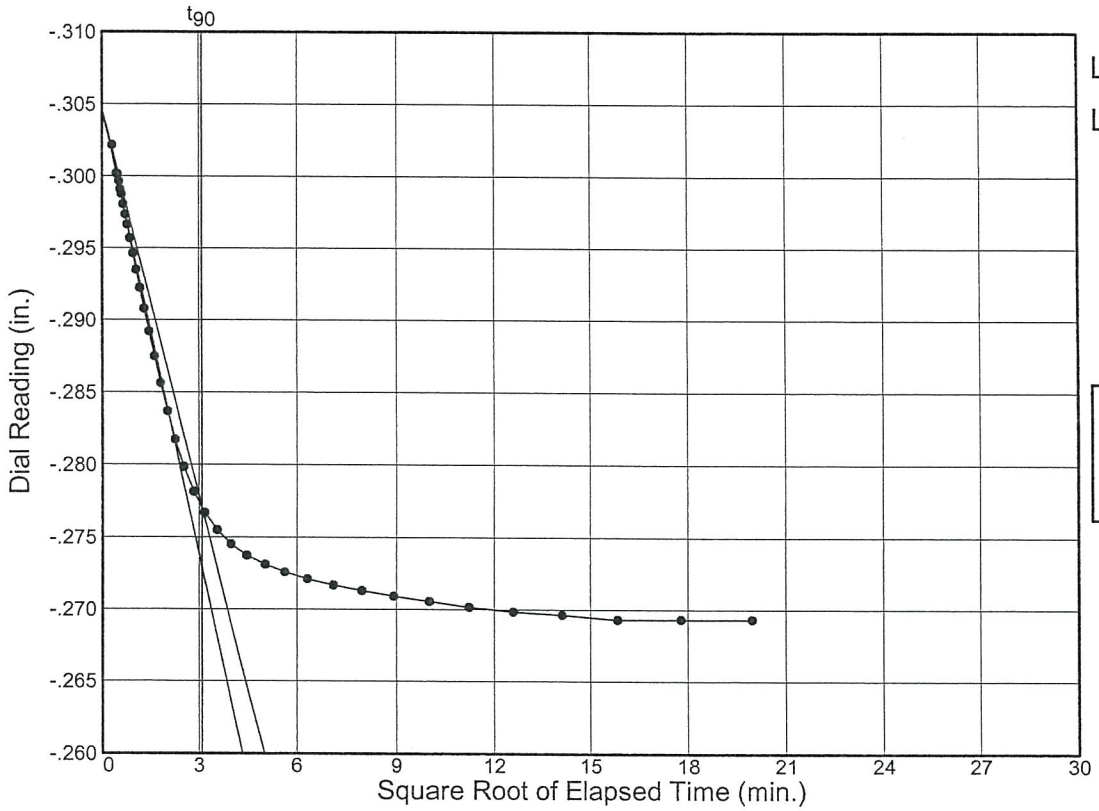
Load No.= 13
Load= 8.00 tsf
D_0 = -0.32815
D_{90} = -0.31135
D_{100} = -0.30948
T_{90} = 7.90 min.

C_v @ T_{90}
0.17 ft.^{2}/day

Dial Reading vs. Time

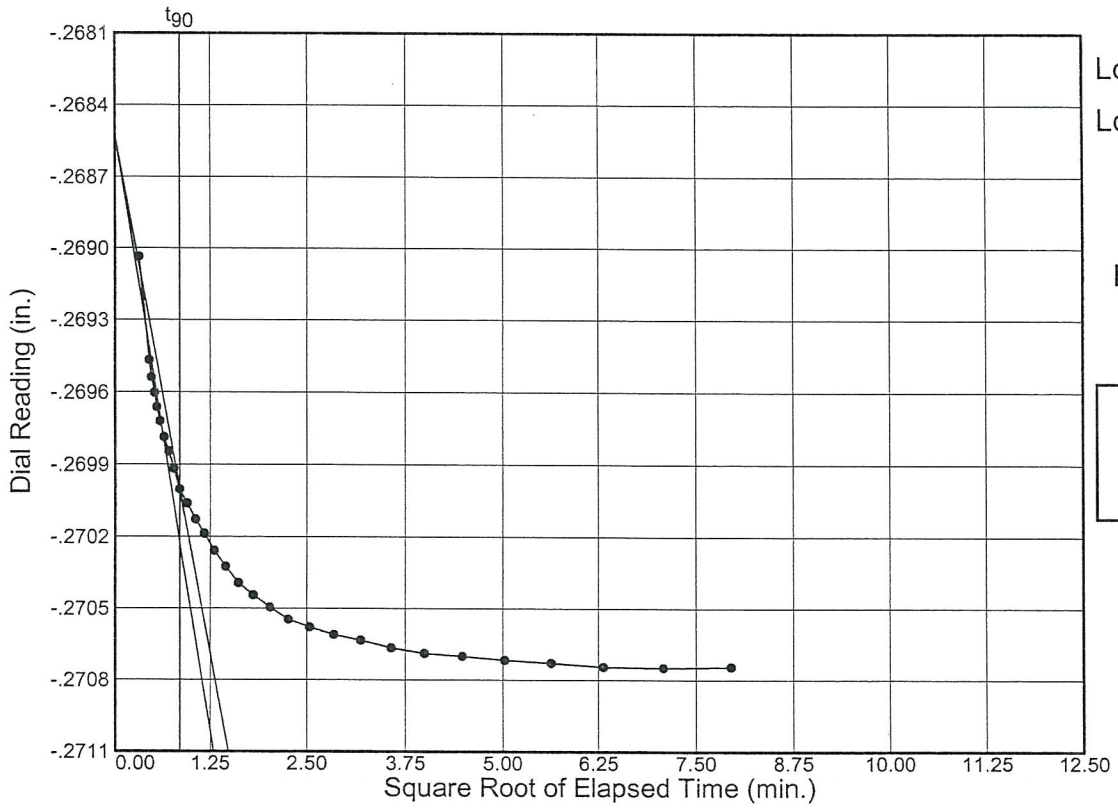
Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 14
Load= 16.00 tsf
D_0 = -0.30475
D_{90} = -0.27708
D_{100} = -0.27400
T_{90} = 9.55 min.

C_v @ T_{90}
0.14 ft.^{2}/day



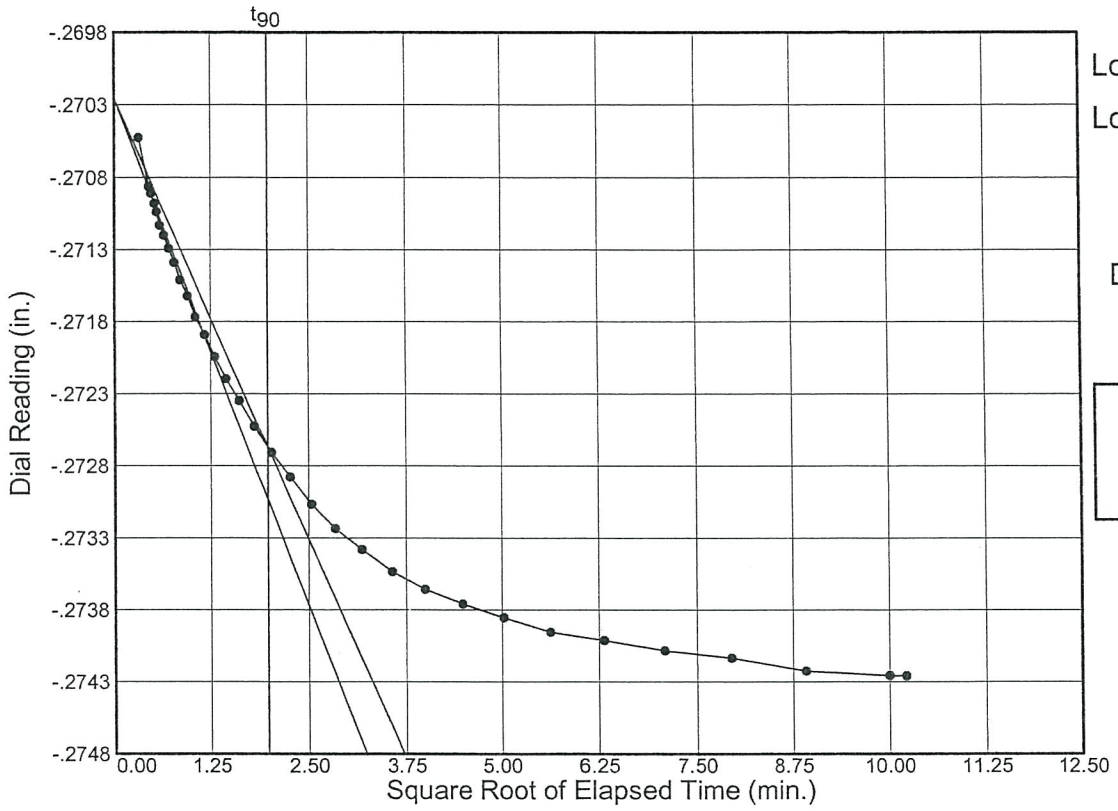
Load No.= 15
Load= 4.00 tsf
D_0 = -0.26852
D_{90} = -0.27000
D_{100} = -0.27017
T_{90} = 0.73 min.

C_v @ T_{90}
1.81 ft.^{2}/day

Dial Reading vs. Time

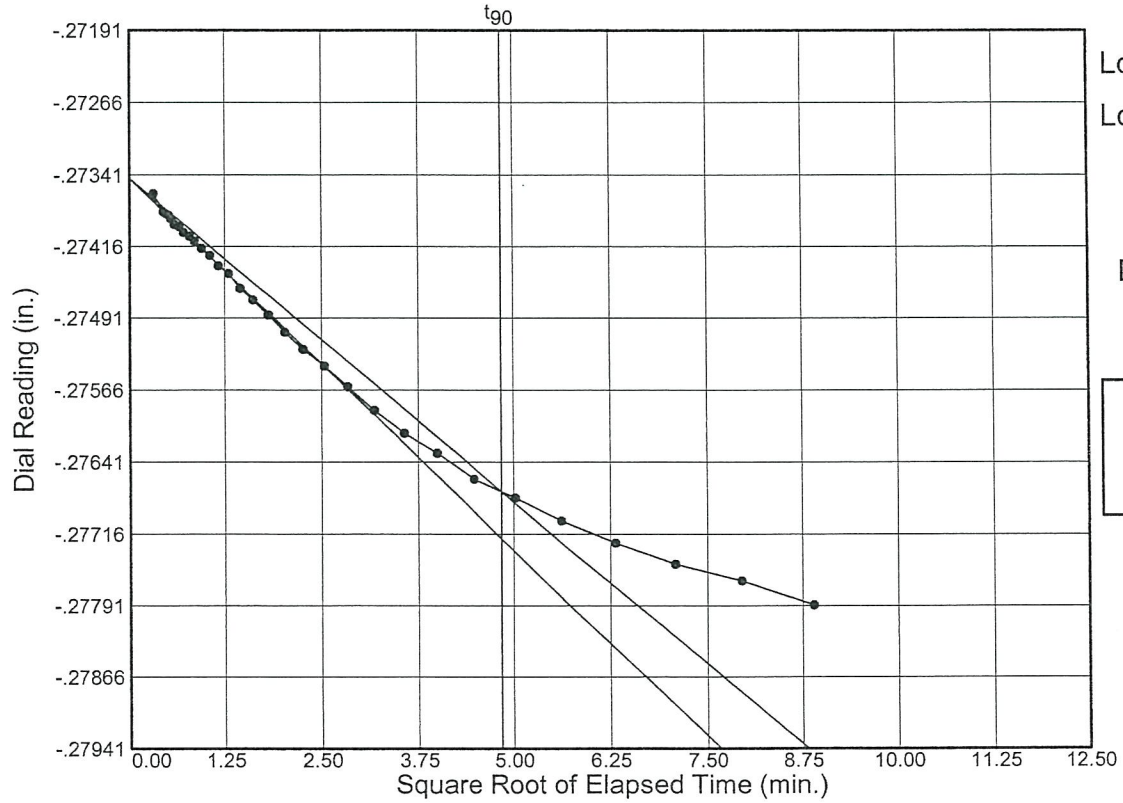
Project No.: 2607G3
Project: WESTERN REGIONAL WATER SUPPLY FACILITY

Location: B-1 40'-42' (16"-22")



Load No.= 16
Load= 1.00 tsf
D_0 = -0.27025
D_{90} = -0.27266
D_{100} = -0.27293
T_{90} = 3.89 min.

C_v @ T_{90}
0.34 ft.^{2}/day



Load No.= 17
Load= 0.25 tsf
D_0 = -0.27344
D_{90} = -0.27672
D_{100} = -0.27708
T_{90} = 23.39 min.

C_v @ T_{90}
0.06 ft.^{2}/day

SETTLEMENT ANALYSIS

ONE DIMENSIONAL SETTLEMENT ANALYSIS/PROTOTYPE ENGINEERING INC.

CIRCULAR LOADS

Project Name : Western Reg WTP
Project Number : 2607G3
Date : 3/20/10
Client : Tetra Tech
Project Manager : EWN/MJP
Computed by : EWN

Increment of stresses obtained using : Boussinesq

Settlement for X = 0.00 (ft) Y = 0.00 (ft)

Footing #	Center Coordinates X(ft)	Y(ft)	Radius (ft)	Load (psf)
1	0.00	0.00	57.50	1500.00

Foundation Elev. = 198.00 (ft) Ground Surface Elev.= 200.00 (ft)
Water table Elev. = 180.00 (ft) Unit weight of Wat. = 62.40 (pcf)

N.	LAYER TYPE	THICK. (ft)	COEFFICIENT COMP.	RECOMP.	SWELL.	UNIT WEIGHT (pcf)	SPECIFIC GRAVITY	VOID RATIO	Settlement (in.)
1	COMP.	30.0	0.008	0.008	0.008	105.00	2.65	0.00	0.91
2	COMP.	17.0	0.025	0.002	0.002	100.00	2.65	0.00	0.82
3	COMP.	6.0	0.048	0.048	0.048	100.00	2.72	1.67	0.16
4	COMP.	4.0	0.025	0.002	0.002	105.00	2.65	0.00	0.14
5	COMP.	18.0	0.025	0.002	0.002	110.00	2.65	0.00	0.47
6	COMP.	28.0	0.004	0.004	0.004	130.00	2.65	0.00	0.07
7	COMP.	5.0	0.012	0.001	0.001	120.00	2.65	0.00	0.02
8	COMP.	12.0	0.005	0.005	0.005	130.00	2.65	0.00	0.02

Total Settlement = 2.61

N.	SUBLAYER THICK. (ft)	ELEV. (ft)	SOIL STRESSES INITIAL (psf)	INCREMENT (psf)	MAX.PAST PRESS. (psf)	SETTLEMENT (in.)
1	3.00	196.50	367.50	1499.97	367.50	0.20
2	5.00	192.50	787.50	1498.71	787.50	0.22
3	5.00	187.50	1312.50	1491.30	1312.50	0.16
4	5.00	182.50	1837.50	1473.55	1837.50	0.12
5	5.00	177.50	2206.50	1443.19	2206.50	0.10
6	5.00	172.50	2419.50	1400.06	2419.50	0.10
7	5.67	167.17	2632.53	1341.69	2632.53	0.30
8	5.67	161.50	2845.60	1269.11	2845.60	0.27
9	5.67	155.83	3058.67	1189.79	3058.67	0.24
10	3.00	151.50	3221.60	1127.05	3221.60	0.08
11	3.00	148.50	3334.40	1083.45	3334.40	0.08
12	2.00	146.00	3433.40	1047.35	3433.40	0.07
13	2.00	144.00	3518.60	1018.77	3518.60	0.07
14	6.00	140.00	3704.00	962.77	3704.00	0.18
15	6.00	134.00	3989.60	882.57	3989.60	0.16
16	6.00	128.00	4275.20	807.90	4275.20	0.14
17	5.60	122.20	4607.28	741.44	4607.28	0.02
18	5.60	116.60	4985.84	682.67	4985.84	0.01

19	5.60	111.00	5364.40	629.06	5364.40	0.01
20	5.60	105.40	5742.96	580.30	5742.96	0.01
21	5.60	99.80	6121.52	536.07	6121.52	0.01
22	5.00	94.50	6454.80	498.02	6454.80	0.02
23	4.00	90.00	6734.00	468.38	6734.00	0.01
24	4.00	86.00	7004.40	443.93	7004.40	0.01
25	4.00	82.00	7274.80	421.14	7274.80	0.01

Total Settlement = 2.61 (in.)

APPENDIX C

Florida Department of Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

August 23, 2018

ELECTRONIC CORRESPONDENCE
In the matter of an
Application for Permit by:

Charles "Tad" Parker, P.E, Chief Engineer
Orange County Utilities
9150 Curry Ford Road
Orlando, FL 32825
tad.parker@ocfl.net

DEP File No. 0080772-688-WC
County: Orange

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number 0080772-688-WC to construct the Western Regional Water Supply Facility (WSF) Improvements, issued pursuant to Section 403.861(9), Florida Statutes.

This permit is final and effective on the date filed with the clerk of the Department unless a petition is filed in accordance with the paragraphs below or unless a request for extension of time in which to file a petition is filed within the required timeframe and conforms to Rule 62-110.106(4), F.A.C. Upon timely filing of a petition or a request for an extension, this permit will not be effective until further Order of the Department.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) with the Agency Clerk for the Department of Environmental Protection, Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, within 14 days of receipt of this Notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-106.205, F.A.C.

A petition must contain the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;
(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;
(c) A statement of how and when the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
(e) A concise statement of the ultimate facts alleged, including the specific facts which petitioner contends warrant reversal or modification of the Department's action;
(f) A statement of the specific rules or statutes the petitioner contends requires reversal or modification of the Department's action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
(g) A statement of the relief sought by petitioner, stating precisely the action that the petitioner wants the Department to take.

A petition that does not dispute the materials facts on which the Department's action is based shall state that no such facts are in dispute and otherwise contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any such final decision of the Department on the petition have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to section 120.68 of the Florida Statutes, by filing a Notice of Appeal pursuant to Rule 9.110 of the Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department.

Executed in Orlando, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Nathan Hess
Interim Permitting and Waste Cleanup Program Administrator
Central District Office

Enclosures: Permit No. 0080772-688-WC

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this permit and all copies were sent on the filing date below to the following listed persons:

Charles “Tad” Parker, Orange County Utilities [tad.parker@ocfl.net]
Jon Bundy, P.E., Tetra Tech [jon.bundy@tetratech.com]
FDEP: Sirena Davila, Lu Burson, Jill Farris, Daissan A. Villareal

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section 120.52, F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.

Dawn M. Festa

Clerk

August 23, 2018
Date

Florida Department of Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

August 23, 2018

ELECTRONIC CORRESPONDENCE

PERMITTEE:
Orange County Utilities
9150 Curry Ford Road
Orlando, FL 32825

PWS ID NUMBER: 3481546
PERMIT NUMBER: 0080772-688-WC
DATE OF ISSUE: August 23, 2018
EXPIRATION DATE: August 22, 2023
COUNTY: Orange
PROJECT: Western Regional Western Regional Water Supply Facility (WSF) Improvements

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-550, 62-555 and 62-560. The above-named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TO CONSTRUCT: Western Regional Western Regional Water Supply Facility (WSF) Improvements.

The Western Regional WSF existing components include:

a. Eight (8) potable water supply wells.
b. Two (2) 2,000,000-gallon ground storage reservoirs.
c. A fluoride storage and feed system.
d. A sodium hypochlorite storage and feed system.
e. Five (5) high service pumps.
f. Two (2) auxiliary power generators
g. Associated electrical and instrumentation.

The proposed modifications to the Western Regional WSF include:

a. Construction of the well house and associated raw water mains
b. Pump replacement for Wells No. 4 and No. 7.
c. Construction of one (1) new 2,000,000-gallon ground storage reservoir.
d. Associated site work, yard piping, electrical and instrumentation.

PROPOSED CONSTRUCTION INCLUDES THE FOLLOWING COMPONENTS:

A. **Construction of the well house and associated raw water mains**

a. **Well No. 11 Building**- The new well building is approximately 16 feet x 18 feet and 8-inches (299 square feet). The building is proposed to be constructed utilizing integral color, split face, 8-inch masonry blocks. The structure will be single-story and have exterior load-bearing walls. The building will have a gable-style roof on two sides, constructed of standing seam metal with insulation, and a pitch of 3:12 with a maximum height of 13 feet and 4-inches. The long sides will be a masonry parapet wall with cap flashing 2 feet above the ridge. The over-hang will be 1 foot on the short sides of the building. The number of the well will be painted on the wall. The building will have a single-swing door, measuring 3 feet x 7 feet and will be made of metal and a steel rollup door, measuring 8 feet x 8 feet. The building will have a vaulted ceiling. The height of the vaulted ceiling inside the perimeter of the room will be 10 feet and 8-inches and the center will be +/- 13 feet and 8-inches. The roof hatch will be 4 feet x 4 feet above the pump.

The Department approved the request to submit a separate permit application for the equipping and connecting of proposed Well No. 11, when the well has been completed and all the required testing has been done. The permit for the equipping and connecting of the new well will include the well pump and all the above ground installation.

b. **Raw water mains**- Approximately 28 linear feet (LF) of 12-inch raw water main and approximately 135 LF of 16-inch raw water main is proposed.

B. **Pump replacement for Wells No. 4 and No. 7**- Existing Wells No. 4 and No. 7 will each be equipped with 150 horsepower (HP) vertical turbine pumps with a rated design capacity of 3,000 gallons per minute (GPM) at total dynamic head (TDH) of 150 feet as shown in the submitted pump characteristic curve. The new vertical turbine pumps will replace the existing vertical turbine pumps for Wells No. 4 and 7, each with a capacity of 3,000 GPM at 125 TDH. Well pumps shall conform to the applicable requirements of ANSI/AWWA Standard E 10, latest revision, Vertical Turbine Pumps - Line Shaft and Submersible Types.

C. **New Ground Storage Tank No. 3-** The construction of a new 2,000,000-gallon (Gal) wire-wound circular pre-stressed composite steel-concrete, domed top ground storage tank (GST). Construction of the new GST will bring the total on site storage to 6.0 million gallons (MG). The tank shall be as manufactured by the Crom Corporation, Gainesville, Florida or Precon Corporation, Newberry, Florida, with no substitutions. General design of the tank shall meet the requirements in AWWA D110-95 Standard for Wire and Strand Wound Circular, Pre-stressed Concrete Water Tanks. The new GST shall be fitted/equipped per Chapter 7.0 of the Recommended Standards for Water Works. Paint shall be NSF 61 approved. The ground storage tank was sized in accordance with Chapter 62-555.320(19) F.A.C. to provide 25 percent of maximum day demand plus applicable

fire flow of 3,500 GPM for 4 hours. Due to space constraints, the proposed yard piping is configured such that the proposed GST No. 3 will be the first GST in series, followed by the existing GST No. 1 and finally GST No. 2. Any one of the three GSTs can be isolated from service with the other two continuing to operate in series.

Accessories to be provided with of the 2.0 MG Potable Water Ground Storage Tank are as follows:

a. Two (2) access manholes located on the vertical wall of the tank
b. One (1) set of exterior aluminum stairs.
c. One (1) interior fiberglass ladder with safety rail.
d. Eight (8) precast concrete overflow outlets.
e. Three (3) fiberglass access hatch for dome access.
f. One (1) fiberglass dome vent.
g. Aluminum handrailing around the dome hatch openings and around the tank dome perimeter.
h. Three (3) dome probe curbs
i. Eight (8) sample ports with smooth nozzle sample taps.
j. Concrete masonry unit baffle wall.

The new GST No. 3 will have a 42-inch overflow drain that meets the requirements of Sections 7.0.5 and 7.0.7 of the Recommended Standards for Water Works. The existing manhole only carries water from the overflow/drain pipes from the two existing storage tanks and will receive the overflow/drain water from the proposed GST No. 3. There is no connection to a storm water conveyance system. The sole purpose of the pipes, inlets, manholes and swale are to discharge overflow/drain from the storage tanks. From the existing type "S" manhole, the water discharges above grade to large lined swale that ultimately drops 15 feet from the entrance to the swale to the end. This allows for ultimate overflow/drain discharge to be visible in addition to the visible flow provided by the steel grates on top of the proposed inlet just outside the tank. There are also level sensors that indicate "high" level in the tank to alert operators. With the inlet (which has grating set 18-inch below the floor of the tank which will spill over to the ground before backing up into the tank) and the discharge swale has two air gaps in addition to the flap gate provided.

D. **Yard piping and transmissions mains**- Approximately 380 LF of 54-inch water main and approximately 10 LF of 48-inch water main, 120 LF of 4-inch service water main and 385 feet of 2-inch service water line are proposed.

E. **Electrical**- Addition of a 4,160 Volt (V) feeder on the left side of the existing 4,160V power switch center (PSC-201) located in the generator room to feed Well No. 11. The power distribution at each new well will be similar to the existing wells and will include a step-down pad mounted transformer outside the well house, a new motor control center (MCC) with lighting transformer, a lighting panel, etc. and well control panel. Transient

Voltage Surge Suppression (TVSS) will be provided for the new MCC and other electrical equipment.

F. **Instrumentation and Controls (I&C)-** The new well control system will be inserted into the nearest existing fiber optic loop between the existing wells. The new well control panel will have Modicon Quantum Programmable Logic Controller (PCL) with communication protocol, distributed inputs/outputs (IO), fiber optic patch panel, etc. as per the County’s “Electrical and I&C Water System Improvements – Design Criteria” – “I&C Design Criteria” section. All instruments will be the same type and model as described in the “Electrical and I&C Water System Improvements – Design Criteria”. The new pressure transducer level transmitter (In-Situ model PXD) for Well No. 11 well will be provided. The new well discharge line will be designed to have high discharge pressure switch for safety purposes and a propeller type flow meter to measure flow. The new well control panel will have an Uninterruptible Power Supply (UPS) system and will have a door intrusion switch that will activate if the PLC control panel door is opened.

The Utility requested no change in the rated design capacity of Western Regional WSF. The Wester Regional WSF after it has been cleared for service by the Department will retain a rated **design capacity of 25,800,000 GPD or 25.8 million gallons per day (MGD**). The plant is classified as **Category V Class C WTP** (5 MGD and above). Staffing must be by a Class C or higher operator with 6 hours per day for 5 days per week and one visit on each weekend day. The lead/chief operator must be Class C or higher. [F.A.C. Rule 62-699.310].

IN ACCORDANCE WITH: This permit does not pertain to any wastewater, storm water or dredge and fill aspects of the project. This permit is issued based upon the dates and submissions during the application process as follows: Construction plans, specifications and details received on July 2, 2018, response to RAI No. 1 received on July 11, 2018 and response to RAI No. 2 received on August 22, 2018.

LOCATION: 2. The Western Regional WSF is located in the County's Western Service Area. The WSF site is located off Lakeville Road at 2552 Lakeville Road just north of S.R. 414 (Apopka Expressway).

Work must be conducted in accordance with the Proposed Construction, General and Specific Conditions, attached hereto.

The permittee shall be aware of and operate under the Permit Conditions below. These applicable conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes. [F.A.C. Rule 62-555.533(1)]

A. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141,

403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times (reasonable time may depend on the nature of the concern being investigated), access to the premises where the permitted activity is located or conducted to:

    a. Have access to and copy any records that must be kept under conditions of the permit;
    b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

   a. A description of and cause of noncompliance; and
   b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.

11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology (BACT)
    b. Determination of Prevention of Significant Deterioration (PSD)
    c. Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)
    d. Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
    c. Records of monitoring information shall include:
        i. the date, exact place, and time of sampling or measurements;
        ii. the person responsible for performing the sampling or measurements;
        iii. the dates analyses were performed;
        iv. the person responsible for performing the analyses;
        v. the analytical techniques or methods used;
        vi. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS

B. Construction Activities

1. Permit Modification

All construction must be in accordance with this permit. Before commencing work on project changes for which a construction permit modification is required per 62-555.536(1), the permittee shall submit to the Department a written request for a permit modification. Each such request shall be accompanied by one copy of a revised construction permit application, the proper processing fee and one copy of either a revised preliminary design report or revised drawings, specifications and design data. [F.A.C. Rule 62-555.536].

2. Professional Engineer Supervision

Permitted construction or alteration of public water supply systems must be supervised during construction by a professional engineer registered in the State of Florida if the

project was designed under the responsible charge of a professional engineer licensed in the State of Florida. The permittee must retain the service of a professional engineer registered in the State of Florida to observe that construction of the project is in accordance with the engineering plans and specifications as submitted in support of the application for this permit. [F.A.C. Rule 62-555.520(3)].

3. Artifacts

If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoe remains, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at 850.245.6333 or 800.847.7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources and the permitting agency. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately, and the proper authorities notified in accordance with Section 872.05, *Florida Statutes*.

4. Delays and Extension of Permit

If delays will cause project completion to extend beyond the expiration date of this permit, the permittee shall submit to the Department a request to extend the expiration date of this permit including the appropriate processing fee. This request shall specify the reasons for the delay and shall be submitted to the Department for approval prior to the expiration date of this permit. Note that no specific construction permit shall be extended so as to remain in effect longer than five years. [F.A.C. Rule 62-555.536(4)].

5. Permit Transfer

In accordance with General Condition #11 of this permit, this permit is transferable only upon Department approval. Persons proposing to transfer this permit must apply jointly for a transfer of the permit within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service by the Department using form, 62-555.900(8), Application for Transfer of a PWS Construction Permit along with the appropriate fee. [F.A.C. Rule 62-555.536(5)]

6. Obligation to Obtain Other Permits

This permit satisfies Drinking Water permitting requirements only and does not authorize construction or operation of this facility prior to obtaining all other necessary permits from other program areas within the Department, or required permits from other state, federal, or local agencies.

7. **Limits on Authorizing Connections**
   This permit is for **CONSTRUCTION ONLY** of the components listed in the first page of this permit. This permit shall not infer that the clearance necessary for connection will be granted. Partial clearance may be granted, if required.

8. **Gasoline Contamination**
   If gasoline contamination is found at the construction site, work shall be stopped and the proper authorities notified. With the approval of the Department, ductile iron pipe and fittings, and solvent resistant gaskets materials shall be used in the contaminated area. The ductile pipe shall be used in the contaminated area. The ductile iron pipe shall extend 100 feet beyond any solvent noted. Any contaminated soil that is excavated shall be placed on an impermeable mat, covered with waterproof covering, and held for disposal. If the site cannot be properly cleaned, then consultation with the Department is necessary prior to continuing with the project construction.

9. **Wetlands Jurisdiction**
   This permit does not constitute approval of construction on jurisdictional wetland areas; therefore such approval must be obtained separately from the Water Management District or from DEP ERP Section, as applicable, Permittee shall provide a copy of the permit approval to the Department if water main installation involves activities on wetlands.

C. Construction Standards

1. **National Sanitation Foundation (NSF)**
   All products, including paints, which shall come into contact with potable water, either directly or indirectly, shall conform with National Sanitation Foundation (NSF) International, Water Chemicals Codex, Food Chemicals Codex, American Water Works Association (AWWA) Standards and the Food and Drug Administration, as provided in Rule 62-555.320(3), F.A.C.

2. **American Water Works Association (AWWA)**
   Water supply facilities, including mains, pipe, fittings, valves, fire hydrants and other materials shall be installed in accordance with the latest applicable AWWA Standards and Department rules and regulations. The system shall be pressure and leak tested in accordance with AWWA Standard C600 C603, or C605, as applicable, and disinfected in accordance with AWWA Standard C651-653, as well as in accordance with Rule 62-555.340, F.A.C.

3. **Lead Free**
   The installation or repairs of any public water system, or any plumbing in residential or nonresidential facilities providing water for human consumption, which is connected to a public water system shall be lead free in accordance with Rule 62-555.322, F.A.C.

4. **Asbestos**
If any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of Federal Asbestos Regulation and Florida DEP requirements. For specific requirements applicable to AC pipes, the permittee should contact the Central District Office prior to commencing any such activities at (407) 897-4100. Please be aware that a notification is required to be submitted to the Department at least 10 days prior to the start of a regulated project.

5. **Hazard and Reuse Setbacks**
Setback distances between potable water wells and sanitary hazards shall be in accordance with 62-555.312, F.A.C. Reclaimed water land application areas, if applicable, must not be located within the setback distance from potable water supply wells established in Chapter 62-610, F.A.C.

6. **Line Separation**
Permittee shall maintain vertical clearance and horizontal separation between water mains and sanitary sewers, storm sewers, etc. unless approved otherwise by the Department, as provided in Rule 62-555.314, F.A.C., and Section 8.6 of *Recommended Standards for Water Works*, a manual adopted by reference in Rule 62-555.330(3), F.A.C.

7. **Color Coding of Pipes**
The new or altered aboveground piping at the drinking water treatment plant shall be color coded and labeled as recommended in Section 2.14 of "Recommended Standards for Water Works, 1997 Edition". [F.A.C. Rule 62-555.320(10)]

8. **Cross Connections**
Permittee shall ensure that there shall be no cross-connection with any non-potable water source in accordance with Rule 62-555.360, F.A.C.

D. Operational Requirements

1. **Staffing**
The Utility requested no change in the rated design capacity of Western Regional WSF. The Western Regional WSF after it has been cleared for service by the Department will retain a rated design capacity of 25,800,000 GPD or 25.8 million gallons per day (MGD). The plant is classified as Category V Class C WTP (5 MGD and above). Staffing must be by a Class C or higher operator with 6 hours per day for 5 days per week and one visit on each weekend day. The lead/chief operator must be Class C or higher. [F.A.C. Rule 62-699.310].

2. **Operation and Maintenance to comply with Water Quality Standards**
The supplier of water shall operate and maintain the public water system so as to comply with applicable standards in F.A.C. Rule 62-550 and 62-555.350.

3. Record Drawings

The permittee shall have complete record drawings produced for the project in accordance with Rule 62-555.530(4), F.A.C.

4. State Watch Office

The permittee or suppliers of water shall telephone the State Watch Office (SWO), at 1-800- 320-0519 immediately (i.e., within two hours) after discovery of any actual or suspected sabotage or security breach, or any suspicious incident, involving a public water system in accordance with the F.A.C. Rule 62-555.350(10).

E. Monitoring Provisions

1. Compliance Monitoring by System Type

Permittee shall follow the guidelines of Chapters 62-550, 62-555, and 62-560, F.A.C., regarding public drinking water system standards, monitoring, reporting, permitting, construction, and operation.

This facility is a Community Water System as defined in F.A.C. Rule 62-550.200(12) and shall comply with the applicable chemical, radiological, lead and copper, and bacteriological monitoring requirements of F.A.C. Rule 62-550. Such requirements shall be initiated within the quarter that the water treatment facility is placed into service (i.e. calendar quarters such as January through March or April through June) and the results submitted to the Department.

2. Chlorine Residual

The Water Treatment Plant shall maintain throughout the distribution system, a minimum continuous and effective free chlorine residual of 0.2 mg/L (or its equivalent). A minimum system pressure of 20 psi must be maintained throughout the system. Also, safety equipment shall be provided and located outside of chlorine room.

F. Clearance Requirements

1. Clearance Letter

The permittee must instruct the engineer of record to request system clearance from the Department within sixty (60) days of completion of construction, testing and disinfecting the system. Bacteriological test results shall be considered unacceptable if the test was completed more than 60 days before the Department receives the results. [F.A.C. Rule 62-555.340(2)(c)]

Permitted construction or alteration of a public water system may not be placed into service until a letter of clearance has been issued by the Department. [F.A.C. Rule 62-555.345]

2. Requirements to Obtain Clearance

After submitting the permit clearance package, the permittee will contact DEP_CD@dep.state.fl.us **to establish a date/time for an inspection of the components contained in this permit.**

Prior to placing this project into service, Permittee shall submit, at a minimum, all of the following to the Department for evaluation and approval for operation, as provided in Rules 62-555.340 and 62-555.345, F.A.C.:

a. The engineer's *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components Into Operation* {DEP Form 62-555.900(9)};

c. Certified record drawings, if there are any changes noted for the permitted project.

d. Analytical results from two consecutive days of satisfactory bacteriological samples from locations found in paragraph 3 below.

e. Copy of a satisfactory pressure test of the process piping performed in accordance with AWWA Standards. [F.A.C. Rule 62-555.320(21) (a)(1)].

f. Provide evidence that the required operation and maintenance(O&M) manual for the water treatment plant is in place, which will be updated thereafter as necessary to reflect plant modifications. The manual shall contain operation and control procedures, and preventive maintenance and repair procedures, for all plant equipment and shall be made available for reference at the plant or at a convenient location near the plant. Bound and indexed equipment manufacturer manuals shall be considered sufficient to meet the requirements of this subsection. [F.A.C. 62-555.350 (13)].

g. Photographs of above ground WTP components.

No clearance will be issued unless the requested components to be cleared for service are viable and acceptable to the Department.

3. Cleaning, Disinfecting, and Bacteriological Samples

The new facilities shall be cleaned, disinfected, and bacteriologically cleared in accordance with Chapter 62-555, F.A.C. The bacteriological clearance data shall be submitted to the Department with the engineer's certification of construction completion. [Section 62-555.340 and 62-555.315(6)(b), F.A.C.]

Bacteriological Sampling Locations: Copies of results from satisfactory bacteriological samples shall be submitted with the clearance package. Samples shall be taken from locations listed below, in accordance with Rules 62-555.315 (6), 62-555.340 and 62-555.330, F.A.C. and American Water Works Association (AWWA) Standard C 651-92. **The engineer-of-record shall submit a sampling plan showing the location of the bacteriological sampling points, considering the following locations:**

1. At the 16-inch well discharge pipe
2. At the 54-inch GST influent pipe.
3. At the 54-inch GST discharge pipe.

Each location shall be sampled on two separate days (at least 6 hours apart) with sample point locations and **chlorine residual readings clearly indicated** on the report and/or drawings. **A sketch or description of all bacteriological sampling locations must be provided.**

Bacteriological sample results will be considered unacceptable if the tests were completed more than 60 days before the Department received the results. Each location shall be sampled on two separate days (at least 6 hours apart) with sample point locations and chlorine residual readings **clearly indicated** on the report and/or drawings.

Please submit the entire clearance document package in electronic format to DEP_CD@dep.state.fl.us. If the file is very large, you may post it to the Water Electronic Submittal folder on the Central District’s ftp site at:

ftp://ftp.dep.state.fl.us/pub/incoming/Central_District/Water%20Electronic%20Applications.

After posting the document, send an e-mail to DEP_CD@dep.state.fl.us alerting us that it has been posted.

Any submitted drawings (should be sized 11” x 17”) and the engineer of record’s signed seal and dates on the required document must be legible for acceptance.

Forms: http://www.dep.state.fl.us/water/drinkingwater/forms.htm

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Nathan Hess
Interim Permitting and Waste Cleanup Program Administrator
Central District Office